Vehicle Consumer Characteristics and Trends

Data Book

-Preliminary Draft-

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Executive Summary

This study of vehicle consumer purchases and trends was developed in response to a request by the senior management of DOE Office of Transportation Technologies (OTT). The purpose of the study is to inform OTT project managers on important vehicle market place characteristics to ensure that OTT-supported technologies meet the needs and desires of consumers.

This is a working draft report, which is being distributed for review and comment. An important objective of this release is to solicit inputs on available market characteristics data that will supplement and/or update the information presented in the following sections.

This report is organized in four sections. General information on consumer vehicle knowledge and preferences is contained in Section I. This includes information on employment patterns, alternative vehicle technologies and alternative fuels, oil and vehicle imports, and Government programs.

Social value characteristics are described in Section II. Research allocation issues, options for reducing oil use and criteria pollutant reduction, and greenhouse gas reduction are included.

New technology benefits perceptions are the subject of Section III. Alternative fuels and vehicle technologies including: electric, hybrid, natural gas/propane and alcohol-fueled, are included.

New vehicle buyer characteristics are the subject of Section IV. The principal elements of this section include: demographics, reasons for buying, importance of various factors in the purchase decision, and methods of buying.

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I. GENERAL KNOWLEDGE

General Characteristics

This section contains information on general knowledge levels and general vehicle characteristics of vehicle purchasers. The focus of the section is on the public's understanding of issues relating to the commercialization of advanced transportation and alternative fuels technologies. Topics covered include the following:

- Conventional vehicles,
- Alternative technology vehicles,
- Conventional and alternative fuels,
- Oil imports,
- Vehicle imports, and
- Government programs.

The information presented in this section provides a "back drop" for subsequent sections that address more specific social, technological, and vehicle purchase characteristics and issues.

1.1 Alternative Vehicles and Technologies

At auto shows in the past four years, people who passed the DOE display were asked what alternative fuel vehicle would they choose if they had to have one. In general, 27% to 49% of respondents choose electric vehicles, 10% to 19% chose natural gas vehicles, and some choose solar.

FAMILIARITY WITH ALTERNATIVE FUELS ISSUE

In 1990, Newsweek interviewed households on their views about alternative fuels and alternative fuel vehicles. Table 1.3.1 illustrates household familiarity with alternative fuel issues by household income. Households with incomes over $75,000 per year were most familiar with alternative fuels, while households with incomes less than $30,000 per year were least familiar with alternative fuels.

Table 1.1.1: Familiarity with the Issue of Alternative Fuels For Cars by Household Income

Household Income	Completely	Very	Somewhat	Slightly	Not At All
<$30,000	0.5%	1.2%	4.5%	3.9%	7.9%
$30,000 - 49,999	0.5%	2.4%	7.4%	6.4%	10.6%
$50,000 - 74,999	0.7%	2.4%	6.4%	5.7%	7.6%
$75,000+	1.5%	3.8%	9.5%	7.6%	9.4%
Total	3.3%	9.8%	27.8%	23.7%	35.6%

Source: Newsweek, “1990 Buyers of New Cars”, pg. E-21.

MOST APPEALING ALTERNATIVE FUEL

Table 1.3.2 illustrates the most appealing alternative fuels to households by income. Solar was the most appealing across all income groups, despite the fact that it is the least practical alternative fuel. Electricity ranked behind solar, methanol, and blends.

Table 1.1.2: Most Appealing Alternative Fuel by Household Income

Household Income	Electric	Methanol	Solar	Blends	None	Don't Know
<$30,000	1.4%	2.3%	2.56%	2.7%	0.8%	8.6%
$30,000 - 49,999	2.5%	3.1%	4.7%	4.6%	0.9%	11.7%
$50,000 - 74,999	2.5%	3.0%	4.6%	4.0%	0.6%	8.0%
$75,000+	4.5%	4.0%	5.6%	5.6%	0.8%	11.2%
Total	10.8%	12.5%	17.4%	16.9%	3.0%	39.5%

Source: Newsweek, "1990 Buyers of New Cars", pg. E-32.

LEAST ATTRACTIVE ALTERNATIVE FUEL

Table 1.1.3: Alternative Fuel You Would Not Use by Household Income

Household Income	Electric	Methanol	Solar	Blends	None	Don't Know
<$30,000	2.9%	4.8%	1.6%	2.0%	1.5%	9.6%
$30,000 - 49,999	4.6%	6.6%	2.9%	2.4%	3.3%	13.6%
$50,000 - 74,999	3.3%	6.2%	2.3%	1.8%	3.6%	10.5%
$75,000+	4.7%	6.5%	3.5%	2.2%	5.5%	14.9%
Total	15.6%	24.1%	10.3%	8.5%	13.9%	48.6%

Source: Newsweek, "1990 Buyers of New Cars", pg. E-33. Multiple responses allowed.

1.2 Oil

In November 1997, Opinion Research International Corporation ("ORC") asked a national sample a number of questions related to oil imports.

ORC first asked respondents "What percentage of oil used in the U.S. is imported?" The results are provided in table 1.2.1.

Table 1.2.1: Percentage of Oil Used in U.S. that is Imported

Response	Percent
0% to 19%	3.0%
20% to 39%	8.7%
40% to 59%	20.7%
60% to 79%	45.1%
80% to 100%	22.4%

Then, ORC asked "The actual import percentage is 50% and is projected to grow. How concerned are you over the amount of oil the U.S. imports? Would you say you are..." The results are provided in table 1.2.2.

Table 1.2.2: Level of Concern Over the Amount of Oil the U.S. Imports

Response	Percent
Very concerned	35%
Somewhat concerned	41%
Not very concerned	14%
Not concerned at all	9%
Don't know	0%

Finally, ORC asked "Why would you say you are [very concerned, somewhat concerned, not too concerned, or not concerned at all] over the amount of oil the U.S. imports?" ORC grouped responses by whether the respondents were very/somewhat concerned or not very/not at all concerned.

On the next two pages are tables of the responses by subgroup. Respondents were allowed to provide more than one response. Consequently, the tables show the reasons; the number of respondents providing the reason; and the frequency of the response as a percent of subgroup responses, subgroup respondents, and total responses for both subgroups.

Table 1.2.3: Reasons for Being Concerned Over Oil Imports

Table 1.2.4: Reasons for Being Concerned at All Over Oil Imports

In August 1998, Opinion Research International Corporation ("ORC") asked a national sample "in what year in the future, do you think gasoline and diesel will become too expensive in cars and trucks?" The median year including all responses, where "don't knows" were considered as being 2100, was 2025. If the "don't knows" are excluded, the median year was 2010. And, if all respondents that said 2005 or earlier are excluded in addition to the "don't know," the median year was 2020. [1] Following is a break-out of responses by time period.

Table 1.2.5: Year in Future When Gasoline and Diesel Will Become Too Expensive

Year	Percent
1999	6%
2000	9%
2001-2005	14%
2006-2010	11%
2011-2015	3%
2016-2020	7%
2021-2025	4%
2026-2050	7%
2051 or later	5%
Don't Know	34%

Source: Opinion Research Corp. Int'l, *Gasoline/Diesel Fuel Replacements*, Study #707349, August 20, 1998 (prepared for NREL).

The survey also asked respondents: "What fuel will most likely replace gasoline and diesel when they become too expensive to use in cars and trucks?" Following are the results of that questions.

Table 1.2.6: Fuel That Will Replace Gasoline and Diesel

Fuel	Percent
Electricity/battery	33%
Solar	12%
Alcohol/Ethanol/Methanol	11%
Natural Gas/CNG/LNG	6%
Hydrogen	3%
Propane (LPG)	2%
Water	2%
Nuclear	1%
Other	4%

[1] There was a concern that survey responses may have been biased because the question was asked within a week of the U.S. missile attack on terrorists in Sudan and Afghanistan.

Don't Know/None	25%

Source: Opinion Research Corp. Int'l, *Gasoline/Diesel Fuel Replacements*, Study #707349, August 20, 1998 (prepared for NREL).

1.3 Global Warming

A number of organizations have published data from national sample surveys that involved question about global warming. These surveys include the Pew Research Center for the People & the Press (November 13-17, 1997), the Sustainable Energy Budget Coalition (December 1995), the World Wildlife Federation (August 15, 1997), the Wall Street Journal (November 1997), the New York Times (November 23-24, 1997), and the USA Today (November 4, 1997).

Knowledge of the Global Warming Issue

A New York Times poll taken November 23 and 24, 1997 found that 27% of respondents said that they had heard a lot about global warming, 38 percent said that they hear or read "some" about it, and about a third said they knew "not much" or "nothing" about it.

A USA Today/Shankei Shimbum poll taken November 4, 1997 found that 18% of Americans are "very familiar" with the issue, while 53% are "somewhat familiar" with the issue. The same poll found that 31% claim to be "very interested" in global warming and 48% are "somewhat interested" in global warming.

A recent Pew Research Center ("Pew") survey polled Americans on how closely they have been following "the debate over U.S. Policy concerning global warming?" The table below summaries the results.

Table 1.3.1: How Closely Americans Have Been Following Global Warming Debate

Response	Percent
Very closely	9%
Fairly closely	24%
Not too closely	33%
Not at all closely	33%

Source: Pew Research Center for the People & the Press (Pew survey performed November 13-17, 1997).

The "seriousness" of global warming

A few of the recent surveys asked Americans how serious they thought global warming is. The Newsweek survey found that 50% percent of Americans worry a great deal or a fair amount about

global warming, down from 62% in a 1991 survey. When the New York Time survey asked Americans about the serious effects of global warming, 23% said that they believed that global warming's impact was already serious, 43% said they thought global warming's serious effects would not be felt until the future, and 13% said they believed that global warming would have no serious effects.

The Sustainable Energy Budget Coalition asked "In your mind, how serious a threat do you think global climate change , also known as global warming, caused by emissions from the combustion of oil, gasoline, and coal is?" Following are results of that survey.

Table 1.3.2: Seriousness of Global Climate Change Threat (SEBC)

Response	Percent
Very serious	35.5%
Somewhat serious	35.4%
Not too serious	16.0%
Not serious at all	8.7%
Don't know	4.4%

Source: Sustainable Energy Budget Coalition, America Speaks Out on Energy: A Survey of Public Attitudes on Sustainable Energy Issues, January 1996.

The World Wildlife Fund recently asked Americans "Generally speaking, how serious of a threat do you think global warming is today, very serious, somewhat serious, not too serious, or not serious at all--or don't you have an opinion on this?" Following are results of that survey.

Table 1.3.3: Seriousness of Global Climate Change Threat (WWF)

Response	Percent
Very serious	24%
Somewhat serious	42%
Not too serious	12%
Not serious at all	7%
Don't know	14%

Source: World Wildlife Fund, World Wildlife Fund National Survey, August 15, 1997.

Seriousness of Global Warming Compared to Other Environmental Problems

Pew and the Wall Street Journal recently asked people how serious they thought various environmental problems are. The Wall Street Journal asked: "Which one of the following environmental problems do you think is the most serious facing the country today?" Following is a

summary of the results of the recent Wall Street Journal Poll and a poll performed by Gallup in 1991.

Table 1.3.4: Public Ranking of Environmental Problems

Environmental Problem	1991	1997
Hazardous or toxic wastes	21%	20%
Destruction of our natural resources	15%	18%
Solid waste and garbage	16%	13%
Water Pollution	12%	13%
Global warming	9%	10%
Air pollution	13%	9%

Source: Fialka, John J., "U.S. Team May Feel Heat in Global Warming Talks," *The Wall Street Journal*, December 1, 1997, p. A24 (Wall Street Journal/NBC News Poll).

Pew asked people whether they "worry a great deal about environmental problems." Results of the Pew poll and a similar poll performed by Gallup in 1989 and 1990 follows.

Table 1.3.5: Worry A Great Deal About Environmental Problems

Problem	1989	1990	1997
Pollution of rivers, lakes, and reservoirs	72%	64%	61%
Toxic waste contamination of soil and water	69%	63%	59%
Air pollution	63%	58%	47%
The loss of natural habitat for wildlife	58%	51%	46%
The loss of tropical rain forests	42%	40%	44%
Damage to the earth's ozone layer	51%	43%	40%
Commercial development of open space	NA	NA	29%
The "greenhouse effect" or global warming	35%	30%	24%

Source: Pew Research Center for the People & the Press (Pew survey performed November 13-17, 1997). 1990 data was cited by Pew as coming from a Gallup poll.

It is interesting to note that less of the public "worry a great deal" about all environmental problems except loss of tropical rain forests in 1997 than they did in 1989 and 1990.

Willingness to take action to combat global warming

Recent polls find that the public generally supports taking steps to combat global warming. The Pew survey asked "Do you think the United States should join other countries in setting standards

to improve the global environment, or should the United States set its own environmental standards independently?" Following are the results of that survey.

Table 1.3.6: How U.S. Should Combat Global Warming

Response	Percent
Join other countries	55%
Set standards independently	41%
Don't Know/Refused	4%

Source: Pew Research Center for the People & the Press (Pew survey performed November 13-17, 1997).

The Pew survey found that 70% of Americans believe that all countries should make the same changes, while 19% believe that developing countries should not have to bear as much of the burden.

The NY Times survey found that 65% of Americans believe that the United States should take steps to reduce its own emissions "regardless of what other countries do," while 15% said that they thought the United States should delay until many countries agree on how to address the problem together.

The NY Times poll asked Americans which approach they favored in combating global warming. 50% favored efficiency standards on vehicles, appliances, etc., while 20% favored tax breaks for nonpolluting energy sources, and only 2% favored higher taxes on gasoline and other fossil fuels. When asked what they thought of the Administration's trading permit proposal, nearly 50% said they did not know enough to judge the proposal, 15% said it was a good idea, and 17% said it was a bad idea.

A Newsweek poll conducted on 11/13-14, 1997 asked Americans what they would be willing to do to reduce greenhouse gas emissions. 82% said that they would buy an energy-efficient kitchen appliance even if it cost $50 more, 74% said they would buy a more fuel-efficient vehicle even if it cost $200 more or made large SUVs much more expensive, and 51% percent said they would pay a 12 cents per gallon greater tax on gasoline to reduce greenhouse gas emissions.

A number of the polls asked Americans their willingness to pay a gasoline tax to reduce greenhouse gas emissions. The Pew survey asked people their willingness to pay 5 or 25 cents extra for a gallon of gasoline "if it would significantly reduce global warming." The WWF survey asked people if they would support a 50 or 75 cent per gallon of gasoline tax if every taxpayer got a $250/$375 rebate in exchange on their tax returns. People who said that they strongly support or somewhat support the tax are combined in the "yes" column. People who said that they are strongly opposed or somewhat opposed to the tax are listed in the "no" column. For either the 50 or the 75 cent tax, the vast majority of people who said they oppose the tax, said that they were strongly opposed to the tax.

The Newsweek poll asked if the respondent would be willing to pay 12 cents a gallon to reduce greenhouse gas emissions. Considering that the Newsweek survey found less people willing to pay a 12 cent tax than the Pew survey found for people willing to pay 25 cents, it seems that the way Pew asked the question ("if it would significantly reduce greenhouse gases") caused a greater percent of the respondents to say they would accept the tax. A summary of the surveys follows.

Table 1.3.7: Willingness to Pay Gasoline Tax

Willingness to pay tax of:	YES	NO	Don't Know	Source
5 cents per gallon	73%	24%	3%	Pew
12 cents per gallon	51%	--	--	Newsweek
25 cents per gallon	60%	37%	3%	Pew
50 cents per gallon	31%	58%	10%	WWF
75 cents per gallon	25%	66%	9%	WWF

Source: Pew Research Center for the People & the Press (Pew survey performed November 13-17, 1997); World Wildlife Fund, World Wildlife Fund National Survey, August 15, 1997; Greenwire, Spotlight on Kyoto Climate Change VI: Polls Show Public Support for Treaty," vol. 7, December 1, 1997 (reporting on Newsweek survey).

II. SOCIAL VALUE

GOVERNMENT MANDATES TO BUILD AFVS

Table 2.0.1: Should Government Require Automakers to Build Alternatively Fueled Cars?

Household Income	Yes	No	Don't Know	Total
<$30,000	7.5%	2.8%	7.7%	18.0%
$30,000 - 49,999	13.1%	4.3%	10.0%	27.3%
$50,000 - 74,999	12.0%	4.0%	6.9%	22.9%
$75,000+	17.0%	6.0%	8.9%	31.9%
Total	49.6%	17.0%	33.4%	100.0%

Source: Newsweek, "1990 Buyers of New Cars", pg. E-22.

A National Vehicle Preference Survey was conducted in November 1995. The telephone survey polled 1903 participants from 47 states (states not included were Alaska, California, and Hawaii). The survey asked respondents :

Table 2.02: How $100 Would Be Allocated To Help Solve 5 Stated Problems

Response	Percent
Pollution	18%
Crime	26%
Schools	28%
Unemployment	15%
Dependence on oil	13%

Source: Argonne National Laboratory, 1995 National Vehicle Preference Survey: Consumer Attitudes, 1995.

2.1 Ways to Reduce Oil Use

A National Vehicle Preference Survey was conducted in November 1995. The telephone survey polled 1903 participants from 47 states (states not included were Alaska, California, and Hawaii). The survey asked:

Table 2.1.1: What is the "Best" Option for Reducing Dependence on Foreign Oil?

Response	Percent
Switch to alternative fuels	17%
Switch to domestically produced fuels	31%
Increase mpg of gasoline vehicles	38%
Reduce the amount of driving	14%

Source: Argonne National Laboratory, 1995 National Vehicle Preference Survey: Consumer Attitudes, 1995.

2.2 Ways to Reduce Air Pollution

A National Vehicle Preference Survey was conducted in November 1995. The telephone survey polled 1903 participants from 47 states (states not included were Alaska, California, and Hawaii). The survey asked:

Table 2.2.1: What is the "Best" Option for Reducing Air Pollution?

Response	Percent
Switch to different kinds of vehicles	43%
Reduce emissions of gasoline vehicles	41%
Reduce the amount of driving	16%

Source: Argonne National Laboratory, 1995 National Vehicle Preference Survey: Consumer Attitudes, 1995.

WILLINGNESS TO PAY TO REDUCE AIR POLLUTION

Table 2.2.2: Additional Amount Willing to Pay for a Car That Reduces Air Pollution

Household Income	$0	<$200	$200-599	$600-999	$1,000+	Don't Know
<$30,000	4.9%	2.0%	2.1%	0.8%	0.9%	7.4%
$30,000 - 49,999	6.1%	2.5%	4.4%	1.9%	2.1%	10.3%
$50,000 - 74,999	4.7%	1.9%	4.0%	2.1%	2.3%	7.8%
$75,000+	5.6%	2.5%	5.2%	3.1%	5.2%	10.2%
Total	21.3%	8.9%	15.7%	7.8%	10.6%	35.7%

Source: Newsweek, "1990 Buyers of New Cars", pg. E-23.

Table 2.2.3: Additional Amount Willing to Pay for a Fuel That Reduces Air Pollution

Household Income	0	10%	20%	30%	40%	50%	Don't Know
<$30,000	4.8%	3.9%	1.6%	0.4%	0.1%	0.5%	6.9%
$30,000 – 49,999	6.9%	6.5%	2.9%	0.9%	0.2%	0.7%	9.2%
$50,000 – 74,999	5.1%	6.1%	2.9%	1.1%	0.2%	0.9%	6.5%
$75,000+	6.2%	7.7%	5.1%	1.5%	0.3%	2.3%	8.9%
Total	23.0%	24.2%	12.4%	3.9%	0.7%	4.3%	31.5%

Source: Newsweek, "1990 Buyers of New Cars", pg. E-24.

Table 2.2.4: Will Not Buy an Alternatively Fueled Car if Gasoline Powered is Available

Household Income	Agree	Agree/Disagree Somewhat	Disagree
<$30,000	3.5%	9.9%	3.5%
$30,000 – 49,999	4.2%	17.1%	6.2%
$50,000 – 74,999	2.4%	15.0%	6.3%
$75,000+	3.3%	18.0%	10.4%
Total	13.5%	60.0%	26.5%

Source: Newsweek, "1990 Buyers of New Cars", pg. F-4.

III. OPINIONS ON BENEFITS OF NEW TECHNOLOGIES

3.1 Electric Vehicles: Perceived Advantages of EVs

Cambridge Research International, Edward Byers, "Memo: Public attitudes toward electric vehicles", May 19, 1993. [Improved environmental quality is the chief drawing card of electric vehicles. ...perceived environmental benefits top American consumers' list of the main advantages of an electric car, and better than 80% of the people think the quality of air they breathe would improve if electric vehicles were widely used. While environmental considerations may motivate consumers to at least think about purchasing an electric vehicle, costs and convenience are clearly going to be critical purchasing criteria as well.

53% of respondents believe that using electric vehicles would go a long way toward improving the quality of the air they breathe.

Table 3.1.1: Main Advantage of Owing an Electric Car

Environmentally Sound	50%
Cheaper Operating Costs	18%
None	8%
Energy Savings	4%
Convenience	4%
Less Maintenance	1%
Quiet	1%
Decrease Foreign Gas/Oil Dependency	1%
Need More Information	1%
Don't Know	12%

PREFERRED INCENTIVES FOR ELECTRIC VEHICLES

The initial cost of an electric vehicle is the single most frequently named purchase consideration. More importantly, most consumers sat the ownership costs would have to be under 29 cents per mile before they would consider purchasing an electric four-door sedan (a gasoline powered four-door sedan in about 34 cent per mile).

Preferred purchase incentives:

- cheaper electric rates for overnight recharging,
- lower registration fees and excise taxes, and
- a higher federal tax credit.

Opposed purchase incentives:

- preferred parking places,
- allowing vehicles to travel at higher highway speeds, and
- banning gasoline powered vehicles in the most polluted cities.

Convenience and/or performance - principally the distance an electric car could go on a single charge - is also an important purchase criterion. Most Americans would want an electric car to go 100 miles or more; the median response was 186 miles. Nonetheless, consumers are unwilling to pay $2,500 for a generator that would increase the range of the electric car to 350 miles.

75% of consumers claim they would not be willing to purchase an electric car unless recharging areas were widely available. 37% of respondents stated that inconveniences such as inability to recharge quickly or increased hassles in the winter were seen as the chief disadvantages of electric vehicles.

Consumer expectations and purchase intentions regarding electric vehicles:

- If electric vehicles were available in their area, 31.5% of the consumers said that they would "definitely" or "probably" consider purchasing such vehicles in the future. 41.4% of the consumers said that they would "probably not" or would "definitely not" purchase an electric vehicle.
- If consumers are told that the annual operating expense of as electric vehicle was going to be less than for a gasoline vehicle, the number of consumers who would "definitely" or "probably" consider purchasing an electric vehicle increases to 47.1%, with only 26% saying they would "probably not" or definitely not" purchase an electric vehicle.

PERCEIVED DISADVANTAGES OF OWNING AN ELECTRIC CAR

Table 3.1.2: Main Disadvantage of Owning an Electric Car

Inconvenient	37%
Limited Range	24%
Cost	10%
Performance	9%
Repairs	3%
No Disadvantages	2%
Need More Information	2%
Size	1%
Dangerous	1%
Don't Know	9%

CONSUMER WILLINGNESS TO FORGO FEATURES IN AN ELECTRIC VEHICLE

Table 3.1.3: Willingness to Give Up Features to Increase Electric Vehicle Range

Feature	Yes	No	Not Sure
Give up air conditioning to increase range 10 miles	29%	70%	1%
Give up the back seat to increase range 20 miles	29%	69%	2%
Give up air bags to increase range 5 miles	28%	69%	3%
$15 for a "quick charge" vs. $0.60 overnight	57%	36%	7%
Require widely available charging stations	76%	21%	3%

Source: The Dorhing Company, 1997 National Automotive Consumer Study, "Consumer Opinions About Air Quality And Electric Vehicles", 1/97.

ATTITUDES TOWARDS MANDATING SALES OF ELECTRIC VEHICLES

Attitudes towards air quality and state regulations mandating the sale of electric vehicles to improve air quality:

- 77.4% said that it is important or very important to them personally that the air quality in their state be improved. Only 8.9% said that it was not at all important to them.
- More than 70% said that they were personally "interested" or "highly interested" in reducing the amount of air pollution created by their motor vehicle.
- 61.8% said that their state government should issue regulations requiring all automotive manufactures that sell vehicles in their state to also sell electric or zero-emission vehicles.

J.D. POWER AND ASSOCIATES ELECTRIC VEHICLE STUDY

CONFIDENTIAL

1995 NATIONAL VEHICLE PREFERENCE SURVEY: ARGONNE NATIONAL LABORATORY

In 1995, Argonne National Laboratory commissioned a study to survey over 1,000 households on consumer perceptions of alternative vehicles. Following are selected opinions on electric vehicles:

Table 3.1.6: Selected Opinions on Electric Vehicles

	Strongly Agree	Somewhat Agree
EVs are as reliable as gasoline vehicles	16%	29%
EVs are a key solution to air pollution	24%	41%
EVs are as safe as gasoline vehicles	44%	28%

3.2 Hybrid Vehicles

Ford Market Research Study (January 1995). Ford conducted 51 one-on-one interviews in Sunnyvale, CA as part of their market research study for the hybrid propulsion development program. Participants owned 1993 MY or newer vehicles in the upper middle car segment (Taurus). They were also environmentally and technology-oriented. The survey used data from a series of questions about willingness to purchase a hybrid with particular attributes to determine when interest in purchasing a hybrid substantially declines:

Table 3.2.1: Minimum Vehicle Attributes Needed to Substantially Satisfy Consumers

Cost:	Maximum of $1,500 more than a standard sedan
Top Speed:	80 mph
Sustained hill climb speed:	60 mph
Gas mileage:	30 mpg
0 to 40 acceleration:	6 seconds
40 to 60 acceleration:	6 seconds
Emissions:	Better than standard sedan (1/2 as much)
Warranty:	3 years/36,000 miles

WILLINGNESS TO PAY FOR 2X

Opinion Research Corporation has surveyed a national sample audience about how much they would pay for a vehicle that had twice the fuel economy of a comparable conventional vehicle. The firm asked two questions. The only difference between the two questions is that the second question, which was asked a week later to a different group, included information on average fuel expenditures. The two questions provided similar results -- the firm got similar responses when respondents were not given fuel expenditure data and when they were told average fuel expenditures per year. **The median was $1679 for question 1 (no fuel expenditure info) and $1816 for question 2 (fuel expenditure info given).**

The results are surprising. It was our expectation that when told of the average amount spent on gasoline (about $600), respondents would lower the amount they would be willing to pay. This did not happen.

Below are the two questions that were asked and a table comparing the aggregate results. Opinion Research Corporation has also provided detailed results by key demographic variables such as income; sex; race; household size; education; and region.

Question 1: Let's suppose that you were buying a new car and there were two identical looking models on the dealer's lot, except that one was equipped with an option to DOUBLE the fuel economy and the other did not have the option. If the cost of the car without the option was $20,000, how much MORE than the $20,000 would you be willing to pay for the option to DOUBLE the fuel economy? [RECORD DOLLAR AMOUNT $0 - $5,000].

Table 3.2.2 illustrates the results from question 1.

Table 3.2.2: Willingness to Pay for 2X

	Total	*Male*	*Female*	*Metro*	*Non-Metro*
None	10%	10%	10%	10%	11%
Less than $1,000	11%	7%	14%	9%	15%
$1,000	15%	14%	15%	15%	14%
$1,001 to $2,000	23%	24%	21%	24%	19%
$2,001 to $3,500	11%	13%	9%	11%	10%
$3,500+	21%	27%	16%	22%	20%
Don't Know	10%	5%	14%	9%	11%

Source: Opinion Research Corporation: 10/17/96.

Question 2: Let's suppose that you were buying a new car and there were two identical looking models on the dealer's lot, except that one was equipped with an option to DOUBLE the fuel economy and the other did not have the option. **Please take into consideration that the average U.S. driver spends about $600 per year on gasoline.** If the cost of the car without the option was $20,000, how much MORE than the $20,000 would you be willing to pay for the option to DOUBLE the fuel economy? [RECORD DOLLAR AMOUNT $0 - $5,000].

Table 3.2.2 illustrates the results from question 2.

Table 3.2.3: Willingness to Pay for 2X (respondents told about fuel expenditures)

	Total	*Male*	*Female*	*Metro*	*Non-Metro*
None	12%	9%	14%	11%	16%
Less than $1,000	15%	15%	16%	16%	12%
$1,000	15%	18%	11%	14%	16%
$1,001 to $2,000	20%	22%	18%	20%	18%
$2,001 to $3,500	11%	12%	10%	10%	11%
$3,500+	20%	21%	10%	20%	19%
Don't Know	8%	4%	11%	8%	7%

Source: Opinion Research Corporation: 10/17/96.

1995 NATIONAL VEHICLE PREFERENCE SURVEY: ARGONNE NATIONAL LABORATORY

In 1995, Argonne National Laboratory commissioned a study to survey over 1,000 households on consumer perceptions of alternative vehicles. Following are selected opinions on hybrid electric vehicles (HEVs):

Table 3.2.4: Selected Opinions on Hybrid Electric Vehicles

	Strongly Agree	Somewhat Agree
HEVs will usually run on electricity	39%	37%
HEVs are as safe as gasoline vehicles	38%	33%

3.3 Natural Gas/Propane Vehicles

Table 3.3.1: Natural Gas Powered Cars are Not as Safe as Gasoline Powered Cars

Household Income	Agree	Agree/Disagree Somewhat	Disagree
<$30,000	2.7%	11.6%	2.8%
$30,000 - 49,999	3.3%	19.3%	4.8%
$50,000 - 74,999	2.1%	17.3%	4.5%
$75,000+	3.1%	20.8%	7.8%
Total	11.3%	69.0%	19.7%

Source: Newsweek, "1990 Buyers of New Cars", pg. F-5.

1995 NATIONAL VEHICLE PREFERENCE SURVEY: ARGONNE NATIONAL LABORATORY

In 1995, Argonne National Laboratory commissioned a study to survey over 1,000 households on consumer perceptions of alternative vehicles. Following are selected opinions on CNG/LPG vehicles:

Table 3.3.2: Selected Opinions on CNG/LPG Vehicles

	Strongly Agree	Somewhat Agree
CNG/LPG vehicles are as reliable as gasoline vehicles	28%	34%
CNG/LPG vehicles are a key solution to air pollution	17%	37%
CNG/LPG vehicles are as safe as gasoline vehicles	21%	33%

3.4 Alcohol Vehicles

1995 NATIONAL VEHICLE PREFERENCE SURVEY: ARGONNE NATIONAL LABORATORY

In 1995, Argonne National Laboratory commissioned a study to survey over 1,000 households on consumer perceptions of alternative vehicles. Following are selected opinions on alcohol vehicles:

Table 3.4.1: Selected Opinions on Alcohol Vehicles

	Strongly Agree	Somewhat Agree
Alcohol vehicles are as reliable as gasoline vehicles	22%	33%
Alcohol vehicles are as safe as gasoline vehicles	24%	36%

3.5 Diesel Vehicles

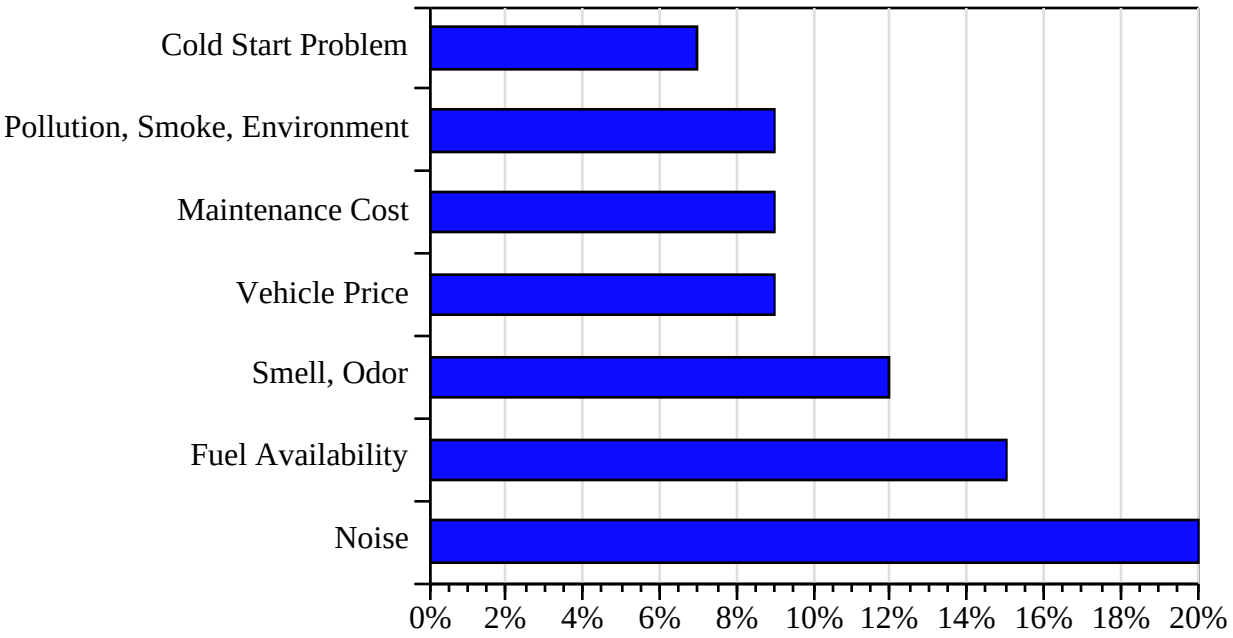
Auto Show Surveys

Table 3.5.1: Consider Buying Diesel-Powered Vehicle

New York 1996 (122 respondents) Yes 33%
New York 1997 (69 respondents) Yes 48%

In July 1997, the Opinion Research Corporation International asked over 1000 consumers whether they would be willing to purchase a diesel vehicle. Only 22% of respondents answered yes. Respondents that answered no were asked why they would not consider a diesel-powered vehicle--the top reasons why they would not consider a diesel-powered vehicle are listed below (categories are represented by the percent of respondents answering no).

Figure 3.5.1: Reason Why Would Not Consider Diesel



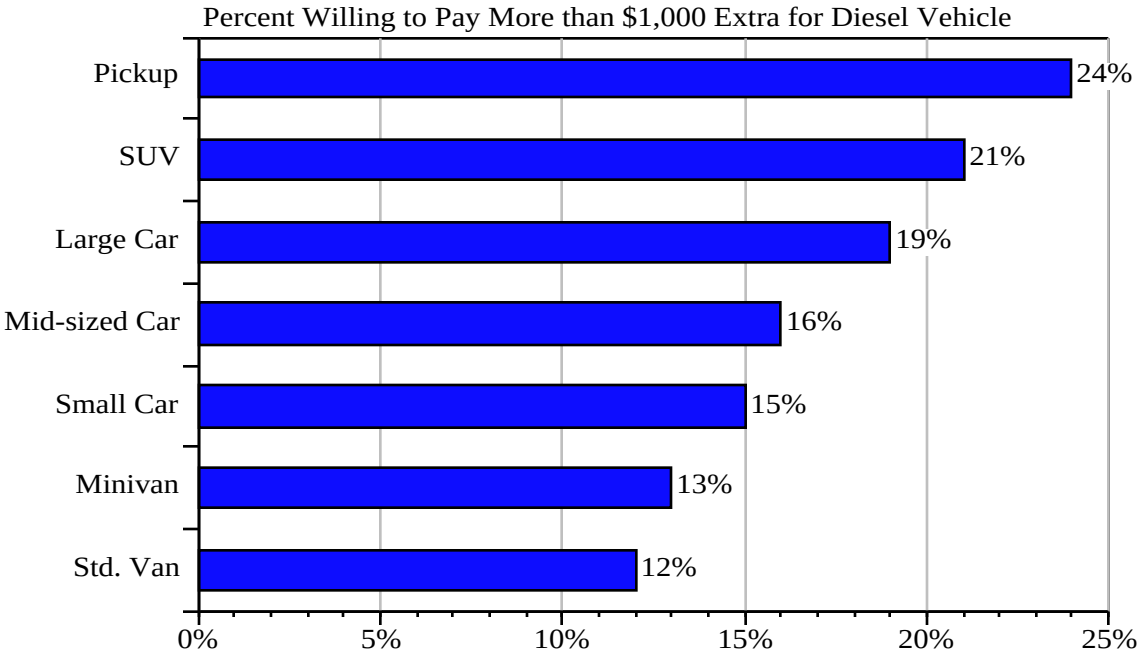
Source: Opinion Research Corporation International, Study #70627, Performed by the National Energy Renewable Laboratory.

But, when ORC asked whether the repsondents "[w]ould … consider buying a diesel engine version that got 40% better fuel economy and cost $1,500 additional for your next new vehicle purchase," 53% of respondents said yes.

In February 1998, the Opinion Research Corporation asked over 1000 consumers the following questions:

If you had a choice between two engines for your next vehicle, both engines equally clean, powerful, odorless, and smooth-running, one using gasoline and getting 20 miles to the gallon, and one using diesel fuel and getting 30 miles to the gallon, how much EXTRA would you be willing to pay for the diesel one?

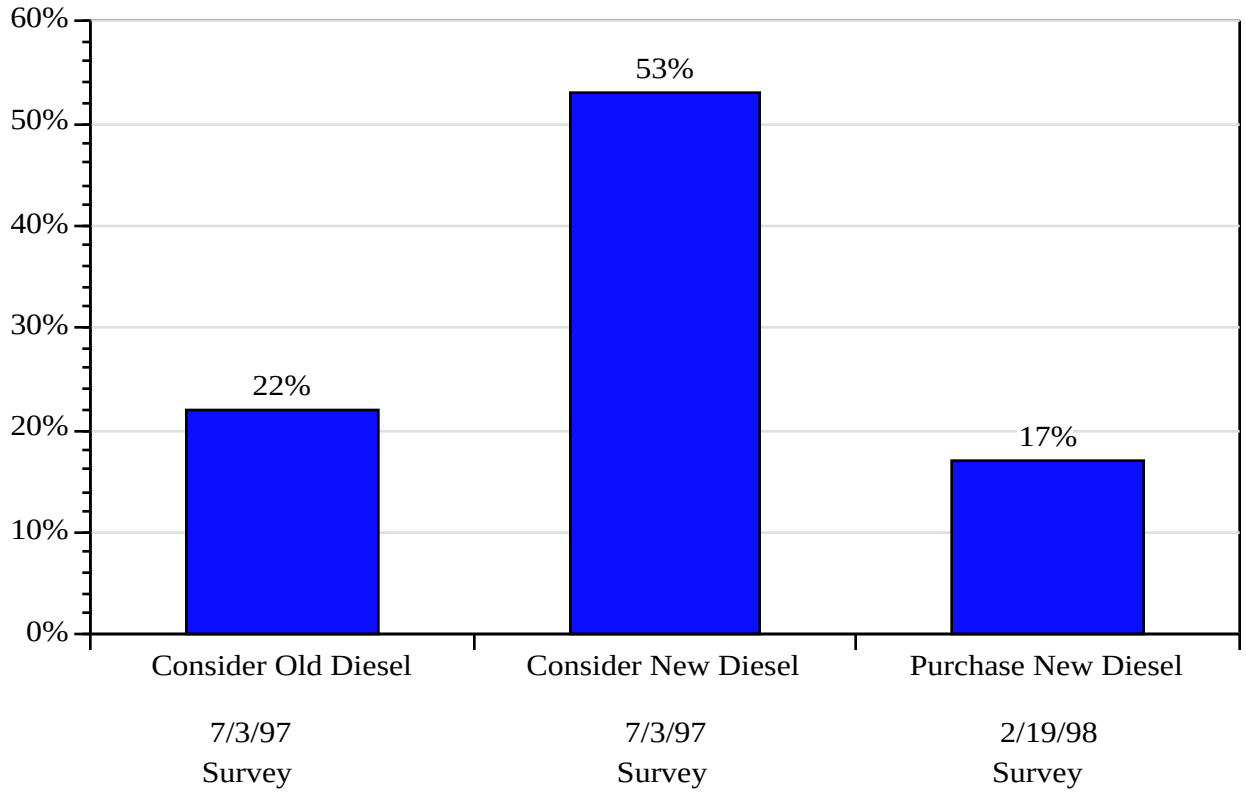
Figure 3.5.2: Willing to Pay $1,000 Extra for Diesel



Source: Opinion Research Corporation International, Study #70627, Performed by the National Energy Renewable Laboratory.

Following is a comparison of the two surveys:

Figure 3.5.3: Comparison of Diesel Surveys



3.6 Attitudes on Fuel Economy in General

In February 1998, NREL paid Opinion Research International Corporation International ("ORC"), to ask a national sample of adults a number of questions related to fuel efficiency. Most of the questions involved a hypothetical scenario involving the purchase of the person's next NEW vehicle. The national sample included 1,019 adults selected randomly. The survey was conducted over the telephone as part of an omnibus survey. Omnibus surveys are surveys that consist of questions submitted by a number of organizations on various topics. ORC has provided detailed results by key demographic variables such as income; sex; age; and region. In addition, the results are provided by type of vehicle the respondent plans on buying next and whether the respondent plans to buy a new or a used vehicle.

ORC first asked people **whether the next vehicle they purchase will be new or used.** Detailed results are presented in table 3.6.2. 45% of respondents indicated that their next vehicle purchase would be new, while 46% said it would be used. As expected, a greater portion of people with higher incomes said they would be purchasing their next vehicle new than people with low incomes. It is interesting to note that 56% of people who said that the next vehicle they will purchase will be a pickup truck also said that they will purchase the pickup truck used, while 55% of SUV buyers said that they would purchase their next vehicle new. Over 21% of people 65 and older said that they did not plan to purchase another vehicle.

When people were asked about **what type of vehicle they plan to purchase next**, 9% said small car, 33% said mid-sized car, 9% said large car, 16% said pickup, 2% said van, 8% said minivan, and 18% said SUV. Detailed results are presented in table 3.6.3. A relatively large share of women selected small car (12% of women versus 6% of men). While 33% of all people indicated that they would purchase a mid-sized car, 41% of women chose mid-sized car compared to 26% of men. Large car drivers tended to be older--9% of all people selected large car, compared to 19% of respondents 55-64 and 27% of people over 65. A relatively large share of men also indicated that they would purchase a pickup--25% of men versus 8% of women. A relatively large share of people between 18 and 34 selected SUV, as did people with household incomes over $50,000.

When people were asked **how much they planned to pay for their next new vehicle purchase**, the median value was $20,000. Detailed results are presented in table 3.6.4. 39% of small car buyers said that they would pay between $10,001 and $15,000, while 27% of large car buyers said they would pay more than $30,000. While the overall share of people who said that they would pay more than $30,000 for their next new vehicle was 7%, 11% of people over 65 and 13% of people with household incomes over $50,000 indicated that they would pay more than $30,000.

People who said that their next new vehicle would be a pickup, standard van, minivan, or SUV (44% of all respondents) were **asked if they planned on buying a towing package and if they planned on using the vehicle off-road**. Detailed results are presented in table 3.6.5 and 3.6.6. 47% of truck buyers said that they planned on buying a towing package. Pickup and SUV buyers were much more

likely to buy a towing package (52% and 51% respectively) than standard van and minivan buyers (33% and 32% respectively). In addition, males (54%) and people between the ages of 18 and 34 (53%) were more likely to say they planned to buy a towing package. 37% of truck buyers said they planned to use the vehicle off-road. Again, pickup (47%) and SUV (43%) buyers were more likely to say they would use the vehicle off-road than standard van (16%) or minivan (8%) buyers. Males (44%) were more likely than females (28%) to say they would use the vehicle off-road. Likewise, people 18-24 (63%) were more likely to say they would use the vehicle off-road than people 55-64 (10%).

People who said that they were planning to buy a car were asked **why they did not choose a light truck**. Detailed results are presented in table 3.6.7. 33% of responses were based on performance such as vehicle size, handling, and acceleration. 27% of responses were based on vehicle interior such as comfort and ease of vehicle entry. 19% of responses were based on cost savings such as better gas mileage, lower sticker prices, and lower insurance. Responses differed dramatically based on whether the person planned on buying a small, mid-sized, or large car.

People were also asked **how much extra they would be willing to pay for a diesel engine that performed identical to a gasoline engine but got 30 mpg instead of 20 mpg**. Detailed results are presented in table 3.6.8. 55% of respondents said that they would not pay anything extra for the diesel engine. People 45-54 (62%) and over 65 (65%) were more likely to say that they would pay nothing extra. 7% said that they would pay $2,000 to $5,000 extra. Pickup truck buyers were more likely to pay extra for the diesel engine (14% said that they would pay $2,000 to $5,000 extra), while standard van buyers were most likely to say they would not pay anything for the diesel engine (73%).

People were asked **what would motivate them to purchase a more fuel efficient vehicle**. Detailed results are presented in table 3.6.9. 45% of respondents cited cost savings such as lower sticker price, lower cost of fuel, and rebates/discounts. 23% cited performance characteristics or features such as lower pollution and acceleration. 2% actually said as long as the vehicle did not run on diesel. An interesting result is that 10% of standard van buyers cited size.

People were asked **whether they would prefer a 15-cent gas tax or a 3% tax on new vehicles** if the nation determined that one of these polices was necessary to reduce greenhouse gases. Detailed results are presented in table 3.6.10. 17% of respondents selected the 25-cent gas tax and 70% selected the 3% tax on new vehicles. People 45-54 (23%) and 65+ (27%) were more inclined to choose the gasoline tax, while people 18-24 (78%) and 25-34 (79%) were more inclined to chose the 3% new vehicle tax.

People were then confronted with a scenario in which they were to choose between three identical cars, except that one came with an option to double fuel economy and one came with an option to triple fuel economy. People were **asked how much extra they would be willing to pay for the vehicles with the higher fuel economies**. Detailed results are presented in table 3.6.11 and 3.6.12. The median value that people would be willing to pay for a vehicle with double fuel economy is

$2,000, while the median value they would pay for a vehicle with triple fuel economy is $3,000. 13% of respondents said they would pay nothing extra for double fuel economy, while 10% said they would pay nothing extra for triple fuel economy.

People were then asked **how much extra would new car prices have to increase (due to environmental concerns) before they decided to purchase a used car instead of a new car**. Detailed results are presented in table 3.6.13. The median value was $4,000. 16% of respondents said none, while 21% said more than $5,000. People 18-24 (29%) and people from households making over $50,000 a year (27%)were most likely to say that prices would have to increase over $5,000 before they decided to buy a used car instead of a new car.

The survey also asked people to choose as the **most important in their next purchase decision**, one of five attributes: fuel economy, dependability, low price, quality, and safety. Detailed results are presented in table 3.6.14. Overall, only 4% of respondents selected fuel economy. Small car buyers were more likely (10%) to select fuel economy than other vehicle buyers, as were males (6%), people 55-64 (6%) and 65+ (8%), and people with household incomes less than $15,000 (9%). Below is a comparison of results from this survey and a survey conducted in December 1996.

Table 3.6.1: Most Important Vehicle Attribute in Next Purchase Decision

	February 1998	December 1996
Fuel Economy	4%	7%
Dependability	36%	33%
Low Price	5%	10%
Quality	20%	19%
Safety	33%	28%
Don't Know/None of These	1%	3%

Following are the detailed results of the survey. Results in bold indicate a result that deviates significantly from the average.

Table 3.6.2: Will the Next Vehicle You Purchase be New or Used?
[1019 people answered question].

	New	Used	Don't Plan to Purchase Vehicle	Don't Know
Total	45%	46%	5%	4%
Next Vehicle Purchase				
Small Car	44%	46%	6%	4%
Mid Car	47%	44%	6%	3%
Large Car	48%	38%	10%	5%
Pickup	**39%**	**56%**	2%	3%
Std. Van	46%	54%	0%	0%
Minivan	46%	50%	3%	1%
SUV	**55%**	**39%**	1%	5%
Sex				
Male	45%	47%	3%	4%
Female	45%	44%	7%	4%
Age				
18-24	46%	51%	2%	1%
25-34	47%	50%	1%	2%
35-44	46%	49%	1%	4%
45-54	49%	46%	1%	5%
55-64	41%	44%	6%	8%
65+	41%	32%	**21%**	6%
Metro/Nonmetro				
Metro	47%	44%	5%	5%
Nonmetro	**39%**	52%	6%	3%
Income				
<$15k	**27%**	59%	10%	4%
$15k-$25k	37%	53%	7%	3%
$25k-$35k	41%	53%	4%	2%
$35k-$50k	46%	47%	0%	6%
$50k+	**59%**	**34%**	3%	4%

Table 3.6.3: Most Likely Type of Vehicle Purchased
[1019 people answered question].

	Small Car	Mid-size Car	Large Car	Pickup	Std. Van	Mini-van	SUV	Won't Buy New
Total	9%	33%	9%	16%	2%	8%	18%	4%
Next Vehicle Purchase								
New	9%	35%	10%	14%	2%	8%	22%	0%
Used	9%	32%	8%	20%	2%	9%	15%	4%
Sex								
Male	6%	26%	11%	**25%**	2%	5%	20%	4%
Female	**12%**	**41%**	8%	8%	2%	10%	15%	4%
Age								
18-24	9%	**41%**	4%	18%	1%	1%	**26%**	0%
25-34	10%	30%	2%	17%	2%	7%	**28%**	3%
35-44	7%	30%	3%	20%	2%	**13%**	21%	3%
45-54	**14%**	31%	8%	18%	2%	9%	15%	4%
55-64	7%	36%	**19%**	16%	3%	7%	10%	3%
65+	10%	35%	**27%**	9%	1%	6%	2%	11%
Metro/Nonmetro								
Metro	10%	35%	8%	14%	2%	8%	18%	4%
Nonmetro	7%	27%	13%	23%	2%	7%	17%	4%
Income								
<$15k	**15%**	**41%**	7%	16%	2%	2%	13%	4%
$15k-$25k	9%	33%	10%	19%	0%	**11%**	10%	6%
$25k-$35k	10%	37%	7%	17%	3%	10%	14%	3%
$35k-$50k	9%	29%	7%	20%	2%	9%	21%	2%
$50k+	5%	31%	9%	16%	3%	8%	**25%**	2%

Table 3.6.4: Amount Plan to Paying for Next New Vehicle
[979 people answered question].

	$5,000 or less	$5000 to $10,000	$10,001 to $15,000	$15,001 to $20,000	$20,001 to $25,000	$25,001 to $30,000	More than $30,000	Don't Know
Total	4%	6%	19%	27%	19%	13%	7%	5%
Next Vehicle Purchase								
New	1%	3%	16%	26%	25%	15%	10%	3%
Used	6%	10%	21%	28%	13%	13%	4%	6%
Small Car	5%	18%	**39%**	23%	5%	2%	1%	7%
Mid Car	4%	8%	27%	31%	15%	6%	3%	7%
Large Car	4%	5%	1%	12%	24%	21%	**27%**	4%
Pickup	3%	3%	19%	34%	21%	13%	4%	3%
Std. Van	6%	6%	16%	35%	11%	13%	13%	0%
Minivan	6%	4%	12%	38%	20%	14%	2%	4%
SUV	1%	1%	6%	18%	28%	30%	12%	4%
Sex								
Male	3%	5%	18%	28%	21%	15%	7%	3%
Female	4%	8%	19%	26%	17%	11%	7%	8%
Age								
18-24	8%	11%	17%	21%	25%	8%	7%	2%
25-34	3%	8%	19%	26%	19%	17%	5%	3%
35-44	2%	5%	20%	34%	19%	12%	6%	3%
45-54	3%	4%	22%	30%	14%	16%	9%	3%
55-64	3%	4%	17%	25%	20%	14%	7%	9%
65+	4%	6%	17%	24%	13%	12%	**11%**	13%
Metro/Nonmetro								
Metro	4%	7%	19%	27%	18%	13%	8%	5%
Nonmetro	3%	5%	19%	26%	20%	14%	6%	6%
Income								
<$15k	9%	13%	24%	30%	12%	5%	4%	5%
$15k-$25k	6%	8%	28%	26%	12%	7%	5%	8%
$25k-$35k	4%	8%	28%	27%	21%	9%	1%	3%
$35k-$50k	1%	4%	19%	27%	23%	13%	9%	4%
$50k+	1%	3%	11%	29%	20%	22%	**13%**	1%

	Median	Mean
Total	$20,000	$20,650
Small Car	$15,000	$14,494
Mid Car	$18,000	$18,022
Large Car	$26,000	$27,513
Pickup	$20,000	$20,427
Std. Van	$20,000	$21,003
Minivan	$20,000	$19,487
SUV	$25,000	$25,662

Table 3.6.5: Plan to Purchase a Towing Package for Next New Light Truck?
[474 people answered question].

	YES	NO	Don't Know
Total	47%	51%	1%
Next Vehicle Purchase			
New	46%	54%	1%
Used	49%	49%	2%
Pickup	**52%**	47%	1%
Std. Van	**33%**	67%	0%
Minivan	**32%**	66%	2%
SUV	**51%**	47%	3%
Sex			
Male	54%	45%	1%
Female	**38%**	61%	2%
Age			
18-24	**53%**	45%	2%
25-34	**53%**	46%	0%
35-44	45%	52%	3%
45-54	46%	53%	1%
55-64	33%	67%	0%
65+	45%	55%	0%
Metro/Nonmetro			
Metro	44%	54%	2%
Nonmetro	**55%**	44%	1%
Income			
<$15k	51%	46%	2%
$15k-$25k	35%	63%	3%
$25k-$35k	42%	56%	2%
$35k-$50k	**57%**	43%	0%
$50k+	46%	54%	1%

Table 3.6.6: Plan to Use Light Truck Off Road?
[474 people answered question].

	YES	NO	Don't Know
Total	37%	62%	1%
Next Vehicle Purchase			
New	34%	64%	2%
Used	41%	58%	1%
Pickup	**47%**	52%	1%
Std. Van	**16%**	84%	0%
Minivan	**8%**	91%	1%
SUV	**43%**	55%	2%
Sex			
Male	44%	55%	2%
Female	**28%**	71%	1%
Age			
18-24	**63%**	37%	0%
25-34	46%	51%	3%
35-44	34%	64%	1%
45-54	25%	75%	0%
55-64	**10%**	90%	0%
65+	26%	74%	0%
Metro/Nonmetro			
Metro	33%	65%	2%
Nonmetro	48%	52%	1%
Income			
<$15k	**47%**	53%	0%
$15k-$25k	**54%**	45%	2%
$25k-$35k	41%	57%	1%
$35k-$50k	39%	60%	1%
$50k+	27%	72%	2%

Table 3.6.7: Why Chose Car Over Light Truck
[505 people answered question].

	Total	Small Car	Mid-Sized Car	Large Car
Performance	33%	**49%**	31%	23%
Size options	18%	**33%**	15%	13%
Easier to handle/maneuver	15%	**25%**	15%	4%
Smooth/Quiet Ride	4%	1%	4%	7%
More horsepower/acceleration	2%	4%	2%	1%
Interior	27%	**14%**	26%	**42%**
Comfort	16%	8%	12%	36%
Roomier/Hold more passengers	10%	5%	11%	9%
Easier to get in	4%	1%	6%	3%
Don't need truck options	13%	7%	14%	13%
Better safety record	6%	2%	4%	14%
Four door option	6%	8%	5%	6%
Need a family car	6%	3%	7%	4%
Car is more luxurious	1%	0%	0%	4%
Cost savings	19%	**39%**	17%	**7%**
Better gas mileage	13%	**31%**	11%	**3%**
Lower sticker price	3%	4%	4%	0%
Less expensive to operate/maintain	2%	5%	1%	4%
Lower insurance rates	1%	2%	1%	1%
Already own truck	7%	5%	7%	11%
Just prefer car	6%	2%	7%	8%
Car is more convenient	3%	5%	2%	2%
More experience with car	2%	0%	2%	2%
Car is more dependable	1%	2%	1%	0%
Other	3%	5%	2%	3%
Don't know	3%	1%	4%	2%

Table 3.6.8: Willingness to Pay Extra for Efficient Diesel
[981 people answered question].

	None	$500 or less	$500 to $1,000	$1,001 to $2,000	$2,001 to $5,000	More than $5,000	Don't Know
Total	55%	7%	8%	8%	7%	2%	12%
Next Vehicle Purchase							
New	58%	6%	6%	9%	7%	2%	12%
Used	52%	8%	10%	7%	9%	2%	11%
Small Car	51%	10%	12%	7%	6%	2%	12%
Mid Car	59%	5%	7%	9%	5%	2%	13%
Large Car	62%	3%	3%	10%	9%	0%	13%
Pickup	**47%**	9%	11%	7%	**14%**	3%	10%
Std. Van	**73%**	4%	6%	6%	6%	0%	5%
Minivan	52%	12%	13%	8%	**3%**	2%	10%
SUV	54%	6%	6%	9%	9%	3%	13%
Sex							
Male	56%	6%	10%	10%	9%	2%	6%
Female	55%	7%	6%	7%	6%	2%	**17%**
Age							
18-24	48%	12%	7%	11%	9%	2%	12%
25-34	49%	8%	13%	9%	**10%**	1%	10%
35-44	53%	8%	8%	8%	8%	3%	12%
45-54	**62%**	4%	8%	7%	6%	2%	12%
55-64	60%	5%	7%	7%	7%	0%	13%
65+	**65%**	1%	4%	9%	5%	3%	13%
Metro/Nonmetro							
Metro	56%	7%	8%	8%	6%	2%	12%
Nonmetro	53%	5%	9%	9%	**11%**	1%	11%
Income							
<$15k	55%	9%	3%	9%	9%	1%	13%
$15k-$25k	52%	9%	10%	8%	3%	2%	17%
$25k-$35k	52%	9%	8%	10%	6%	5%	10%
$35k-$50k	52%	5%	8%	10%	9%	1%	14%
$50k+	**59%**	5%	10%	7%	8%	1%	9%

Table 3.6.9: Motivation to Purchase a More Fuel Efficient Vehicle
[981 people answered question].

	Total	Small Car	Mid Car	Large Car	Pick-up	Std. Van	Mini-van	SUV
Cost Savings	45%	43%	43%	45%	43%	52%	**39%**	52%
Sticker price of vehicle	17%	7%	16%	18%	15%	20%	19%	21%
Lower cost in general	14%	20%	13%	12%	13%	21%	14%	11%
Lower cost of fuel	13%	14%	12%	14%	13%	10%	4%	16%
Lower op./main. costs	3%	1%	2%	3%	4%	0%	4%	2%
Rebate/Discount	1%	3%	1%	3%	0%	0%	1%	1%
Features/Performance	23%	24%	23%	22%	25%	21%	19%	21%
Less pollution	11%	10%	11%	14%	12%	**0%**	8%	10%
Horsepower/acceleration	3%	1%	2%	3%	**8%**	0%	4%	3%
Good/better performance	2%	4%	3%	1%	1%	0%	0%	3%
Size	1%	1%	1%	1%	1%	**10%**	0%	1%
Smooth/Quiet ride	1%	2%	0%	1%	0%	0%	3%	1%
Other features offered	7%	8%	7%	4%	6%	16%	6%	5%
Fuel	5%	2%	4%	5%	4%	5%	6%	8%
Availability of fuel	2%	0%	2%	2%	2%	0%	3%	3%
Doesn't run on diesel	**2%**	2%	1%	0%	2%	0%	2%	3%
Operates on electricity	1%	0%	1%	2%	0%	0%	1%	2%
Gas mileage	17%	17%	18%	17%	20%	7%	21%	14%
Depends on driving miles	2%	3%	1%	2%	2%	0%	3%	2%
Depends on economy	1%	3%	2%	3%	1%	0%	2%	0%
Other	5%	5%	5%	6%	6%	4%	3%	5%
Nothing/Not interested	8%	6%	8%	8%	9%	13%	6%	6%
Don't know	9%	9%	9%	9%	8%	14%	12%	9%

Table 3.6.10: Greenhouse Gas Policy Preference
[1019 people answered question]

	25-cent per gallon tax on gasoline	3% tax for new vehicles	Don't Know
Total	17%	70%	13%
Next Vehicle Purchase			
New	18%	69%	13%
Used	15%	73%	12%
Small Car	22%	61%	17%
Mid Car	16%	71%	13%
Large Car	15%	69%	16%
Pickup	15%	74%	11%
Std. Van	15%	75%	10%
Minivan	18%	72%	10%
SUV	19%	71%	10%
Sex			
Male	17%	67%	16%
Female	17%	73%	10%
Age			
18-24	17%	**78%**	5%
25-34	11%	**79%**	10%
35-44	16%	73%	11%
45-54	**23%**	60%	17%
55-64	**27%**	60%	13%
65+	12%	66%	22%
Metro/Nonmetro			
Metro	18%	68%	14%
Nonmetro	14%	76%	10%
Income			
<$15k	18%	70%	13%
$15k-$25k	20%	76%	4%
$25k-$35k	14%	**77%**	9%
$35k-$50k	14%	72%	14%
$50k+	20%	67%	13%

Table 3.6.11: Willingness to Pay for 2X
[1019 people answered question]

	None	$500 or less	$500 to $1,000	$1,001 to $2,000	$2,001 to $5,000	More than $5,000	Don't Know
Total	13%	6%	13%	21%	30%	5%	11%
Next Vehicle Purchase							
New	12%	6%	13%	26%	31%	4%	7%
Used	12%	7%	14%	17%	31%	6%	12%
Small Car	**23%**	5%	14%	18%	27%	3%	11%
Mid Car	12%	5%	11%	24%	29%	5%	13%
Large Car	14%	6%	11%	17%	34%	2%	16%
Pickup	9%	8%	11%	21%	35%	7%	8%
Std. Van	20%	6%	14%	18%	20%	4%	17%
Minivan	8%	10%	10%	29%	30%	4%	10%
SUV	13%	4%	18%	21%	32%	6%	5%
Sex							
Male	13%	5%	14%	24%	31%	6%	6%
Female	13%	7%	12%	19%	29%	4%	16%
Age							
18-24	8%	11%	19%	26%	25%	6%	5%
25-34	9%	6%	15%	18%	**38%**	7%	7%
35-44	9%	4%	18%	28%	28%	4%	8%
45-54	**18%**	5%	7%	20%	**38%**	4%	9%
55-64	13%	10%	8%	25%	26%	5%	13%
65+	**20%**	5%	8%	13%	23%	3%	**27%**
Metro/Nonmetro							
Metro	13%	6%	12%	22%	31%	5%	11%
Nonmetro	12%	6%	16%	20%	29%	6%	12%
Income							
<$15k	16%	11%	15%	15%	20%	6%	16%
$15k-$25k	9%	8%	13%	23%	27%	6%	14%
$25k-$35k	14%	6%	17%	17%	33%	4%	8%
$35k-$50k	13%	8%	11%	24%	31%	6%	8%
$50k+	10%	5%	11%	25%	37%	5%	7%

Table 3.6.12: Willingness to Pay for 3X
[1019 people answered question]

	None	$500 or less	$500 to $1,000	$1,001 to $2,000	$2,001 to $5,000	More than $5,000	Don't Know
Total	10%	4%	4%	12%	33%	23%	14%
Next Vehicle Purchase							
New	10%	3%	4%	13%	38%	22%	11%
Used	9%	4%	5%	12%	30%	25%	14%
Small Car	**18%**	3%	5%	11%	35%	**10%**	17%
Mid Car	9%	4%	3%	11%	31%	26%	16%
Large Car	10%	5%	4%	6%	30%	24%	21%
Pickup	9%	4%	5%	10%	40%	23%	9%
Std. Van	15%	6%	0%	14%	33%	15%	17%
Minivan	7%	4%	6%	14%	37%	22%	10%
SUV	10%	3%	2%	16%	35%	26%	7%
Sex							
Male	10%	3%	4%	11%	37%	24%	9%
Female	10%	4%	4%	12%	29%	22%	19%
Age							
18-24	10%	7%	3%	15%	35%	24%	8%
25-34	8%	3%	4%	13%	35%	29%	8%
35-44	7%	2%	5%	17%	**37%**	21%	11%
45-54	7%	3%	3%	7%	36%	25%	12%
55-64	**13%**	6%	3%	8%	33%	24%	15%
65+	11%	3%	5%	6%	21%	15%	33%
Metro/Nonmetro							
Metro	11%	3%	4%	11%	34%	23%	14%
Nonmetro	9%	3%	5%	13%	31%	24%	15%
Income							
<$15k	11%	7%	4%	15%	24%	18%	21%
$15k-$25k	8%	3%	8%	10%	28%	24%	18%
$25k-$35k	12%	3%	5%	15%	31%	23%	10%
$35k-$50k	11%	5%	3%	11%	**38%**	21%	11%
$50k+	7%	4%	2%	10%	**40%**	27%	9%

Table 3.6.13: Price Increase Needed to Cause Switch from New to Used
[1019 people answered question].

	None	$500 or less	$500 to $1,000	$1,001 to $2,000	$2,001 to $5,000	More than $5,000	Don't Know
Total	16%	4%	5%	8%	27%	21%	19%
Next Vehicle Purchase							
New	13%	3%	3%	9%	30%	27%	16%
Used	21%	5%	6%	8%	26%	17%	17%
Small Car	19%	4%	7%	3%	28%	22%	17%
Mid Car	14%	3%	3%	10%	30%	20%	19%
Large Car	18%	4%	4%	7%	16%	21%	30%
Pickup	20%	5%	6%	10%	27%	19%	13%
Std. Van	19%	0%	0%	0%	35%	**29%**	17%
Minivan	19%	**7%**	4%	3%	27%	23%	17%
SUV	11%	2%	3%	13%	30%	**25%**	15%
Sex							
Male	18%	5%	5%	10%	29%	21%	14%
Female	15%	3%	5%	7%	26%	21%	23%
Age							
18-24	12%	5%	4%	13%	28%	**29%**	9%
25-34	15%	4%	4%	9%	36%	21%	11%
35-44	13%	4%	4%	8%	29%	23%	19%
45-54	**21%**	3%	4%	8%	25%	26%	11%
55-64	18%	3%	65	5%	27%	19%	24%
65+	19%	4%	6%	8%	13%	12%	38%
Metro/Nonmetro							
Metro	16%	4%	4%	9%	27%	22%	18%
Nonmetro	19%	4%	5%	7%	26%	19%	20%
Income							
<$15k	11%	**9%**	7%	9%	20%	16%	26%
$15k-$25k	16%	6%	6%	14%	23%	21%	14%
$25k-$35k	**22%**	2%	5%	8%	28%	17%	17%
$35k-$50k	14%	3%	5%	12%	32%	23%	11%
$50k+	17%	4%	3%	5%	29%	**27%**	16%

Table 3.6.14: Most Important Vehicle Attribute
[1019 people answered question]

	Fuel Economy	Dependability	Low Price	Quality	Safety	Don't Know/ None of These
Total	4%	36%	5%	20%	33%	1%
Next Vehicle Purchase						
New	2%	35%	5%	21%	35%	2%
Used	5%	35%	6%	19%	34%	0%
Small Car	**10%**	40%	**10%**	16%	**23%**	1%
Mid Car	5%	34%	6%	18%	35%	1%
Large Car	6%	30%	1%	**27%**	35%	1%
Pickup	3%	**46%**	5%	19%	27%	0%
Std. Van	4%	22%	0%	**53%**	**21%**	0%
Minivan	**1%**	31%	7%	16%	**43%**	2%
SUV	**1%**	34%	3%	22%	39%	1%
Sex						
Male	**6%**	39%	5%	24%	**25%**	1%
Female	3%	33%	6%	16%	**41%**	1%
Age						
18-24	**2%**	38%	5%	23%	32%	0%
25-34	4%	32%	5%	25%	32%	1%
35-44	3%	38%	8%	16%	36%	0%
45-54	5%	34%	5%	23%	32%	1%
55-64	6%	36%	3%	16%	38%	1%
65+	**8%**	37%	4%	15%	32%	4%
Metro/Nonmetro						
Metro	5%	35%	6%	20%	34%	1%
Nonmetro	4%	40%	4%	19%	31%	2%
Income						
<$15k	**9%**	30%	8%	**12%**	40%	0%
$15k-$25k	5%	41%	4%	17%	33%	1%
$25k-$35k	3%	35%	8%	21%	32%	2%
$35k-$50k	4%	39%	5%	19%	32%	1%
$50k+	2%	33%	3%	26%	34%	1%

IV. NEW VEHICLE BUYERS

Information describing new vehicle buyers and buying preferences is presented in this section. Major topics covered include the following:

- **Demographics**—Buyer income is a major influence in the purchase decision. In addition, clear differences in buying patterns have been identified between male and female buyers. The apparent effects of income on vehicle selection is considered. Attention also is devoted to the preferences of multi-vehicle households. This discussion ends with an array of auto purchase statistics, including factors affecting the growth in sales of pickups and sport utility vehicles (SUVs).
- **Reasons for buying**—A variety of topics are covered here including: large car versus(vs.) small car purchase selections, and truck vs. car purchase decisions. Additional topics of interest are economics, fuel economy, performance attributes, and additional/larger vehicle considerations. As the reviewers will note, in many cases additional and/or more current information is needed to complete these presentations.
- **Important factors influencing purchase decisions**—Topics covered here include the following: buyer preferences regarding convenience/comfort, and accessory features. Other factors of interest are reliability, durability, and maintenance; styling/image, and function (e.g. towing and load carrying capabilities); and cost. As with "reasons for buying" in many cases additional and/or more current information is being sought. Fueling and fuel availability knowledge and preferences also are covered. Safety is another important purchase decision factor. The results of recent survey data by Dorhing and Opinion Research provide insight into current consumer safety device preferences.
- **Methods of Buying**—This is another major topic of Section IV. As indicated below, monthly payment is an important factor. However, purchasers now can choose among a variety of purchase options—direct (cash) purchase, loan financing, or lease; which can have a significant affect on the monthly cost. Preferences are described in relation to vehicle type. The effects of changing finance time periods also are reviewed.

4.1 Income

Forty-one percent (41%) of the population earns more than $30,000 per year buys 57% of the new vehicles.

Average income statistics of new vehicle purchasers are summarized in Table 4.1.1.

Table 4.1.1: Average Annual Household Income of Future Light Vehicle Purchasers

Vehicle Type	Annual Income, $
Sport Utility	$40,800
Minivan	$34,400
Truck	$34,000
Auto	$33,700

There are few differences in buyer considerations by income. Although fuel economy was mentioned twice as often by lower income households as higher income households. Quality, however, was more frequently cited as an important consideration by high income than low income households.

Other income-related determinants include the following:

- Income is clearly related to the total number of vehicles in the household fleet. As illustrated in Table 4.1.2, the higher the income, the greater the number of vehicles in the household fleet.
- In the current situation, households with incomes of $35,000 and above - the majority of new vehicle buying households - are satisfied with the number of vehicles they own. In contrast, households with annual incomes of less than $35,000 would prefer to have about 17% more vehicles than they own.
- It is anticipated that higher-income households will adjust their car/truck mix more rapidly than lower-income households toward their preferred mix. This is expected to occur for two reasons. First, higher income households have a higher propensity to purchase new vehicles than do lower-income households, and new vehicle sales are more heavily tilted toward trucks than used vehicle sales. Second, since the most desired vehicles are relatively new in the marketplace, there are not as many of them available as older used vehicles.

Table 4.1.2: Total Number of Vehicles Owned and Preferred By Household Income

Household Income	Owned	Preferred	% of Households
<$15,000	1.32	1.49	15%
$15,000-24,999	1.64	1.81	22%
$25,000-34,999	1.83	2.00	18%
$35,000-49,999	2.14	2.20	16%
$50,000+	2.50	2.48	29%

Source: University of Michigan, Survey Research Center, "Results of Questions on Car/Truck Preferences and Other Special Issues", August, 1994.

4.2 Sex

Females account for 52.6% of the adult population and buy 51.4% of vehicles.

Women drive the automotive marketplace today. Looking at the top ten cars among females from 1990 to 1995, it is clear that young, professional women buyers prefer the economical and entry-level cars. Some focus groups indicate that women behave similarly to any other customer group, but the considerable shifts in the top ten in the past five years indicate that female buyers won't hesitate to switch brands if their needs are not met. In the sport utility segment, arguably the hottest target group are females, who flock to the vehicles. Women buyers report that sport utilities offer them a wide view of the road, a greater sense of safety and security, and, of course, the vehicles are extremely trendy. Women also greatly influence - if they don't purchase outright - the sales of minivans.

Source: JD Power and Associates, The Power Report, "Price Drives Female Buyers' Car and Truck Choices", pg. 1, September, 1995.

Another recent survey on female buying practices revealed the following:

- Currently, 54.3% of new and used vehicle purchasers are female.
- In the future, 59.2% of future passenger car buyers will be females.
- Also, 61.4% of future minivan buyers will be females. In particular, 48.2% of new minivan buyers are females between the ages of 25 and 49 years.
- Future sport utility buyers will be 53.8% female. More than 40% of future sport utility buyers are females between the ages 25 and 49 years. Most likely, sport utilities owned by females will be used as a family transport vehicle and will never be driven off-road.

Source: Dorhing National Survey, December, 1995
Conversely, males comprise 79% of light truck owners, compared to 58% of all passenger car owners who are males

Source: Chilton Automotive Marketing, "1996 National Survey" March 24, 1997

American women influence as much as 80 percent of all car buying decisions. Women now represent 43 percent of Americans who have more than $500,000 in gross assets; and in a full third of all dual income families, the woman earns more than the man. With high powered careers and increasing demands on their time, women are "multi-tasking" -- on the way home from work, they're stopping at the cleaners and picking up their children. As a result of this hectic lifestyle, they're spending more of their time in their cars and want safety, security, comfort, control, and convenience.

Source: Jensen, Cheryl, "Cadillac Tailors Catera to Women", PRN Automotive, April, 1997.

4.3 Age

People over the age of 40 account for 47.8% of the population and buy 51.2% of vehicles.

A recent University of Michigan Survey revealed the following additional age-related patterns.

- Vans appeal principally to households during the ages when children are present.
- Pickups appeal about equally to all ages below 65.
- The age pattern to the number of sport utilities preferred strongly suggests that "sporty" is an apt term for these trucks. Although all ages want more sport utilities than they currently own, the youngest ages want the most.
- The similarity in the preferred numbers of sport utilities and pickups by age groups through age 44 suggests that younger consumers may perceive these two types of trucks similarly, thinking of them both as sporty, youthful trucks.

Vehicle ownership patterns and preferences are shown in Table 4.3.1.

Table 4.3.1: Total Number of Vehicles Owned and Preferred by Age of Household Head

Age of Household Head	Owned	Preferred	% of all Households
18-24	1.77	2.19	6%
25-34	1.88	2.07	26%
35-44	2.06	2.24	21%
45-54	2.41	2.36	15%
55-64	2.05	2.04	14%
65+	1.50	1.48	18%

- All age groups would prefer fewer cars than they currently own, with ages 18-54 wanting about

25% to 33% fewer cars.

- Although there is a life-cycle pattern to the number of vans preferred, all want more vans than they currently own. Households in the early stages of family life cycle would like the largest increase in the number of vans owned.
- With the exception of 18-24 year olds, there is little motivation for households to change the number of pickups they currently own 18-24 year olds prefer twice as many pickups as they own.
- Age makes little difference in the number of sport utilities owned, but a large difference in the number preferred.

Source: University of Michigan, Survey Research Center, "Results of Questions on Car/Truck Preferences and Other Special Issues", August, 1994

Future sport utility buyers have been characterized in a recent Dorhing Survey as indicated in Table 4.3.2.

Table 4.3.2: Future Sport Utility Buyers

By Age	Male	Female
18-24	7%	4%
25-34	15%	17%
35-49	14%	24%
50-64	9%	8%
65+	2%	1%
Total	46.2%	53.8%

Source: Dorhing National Survey, December, 1995

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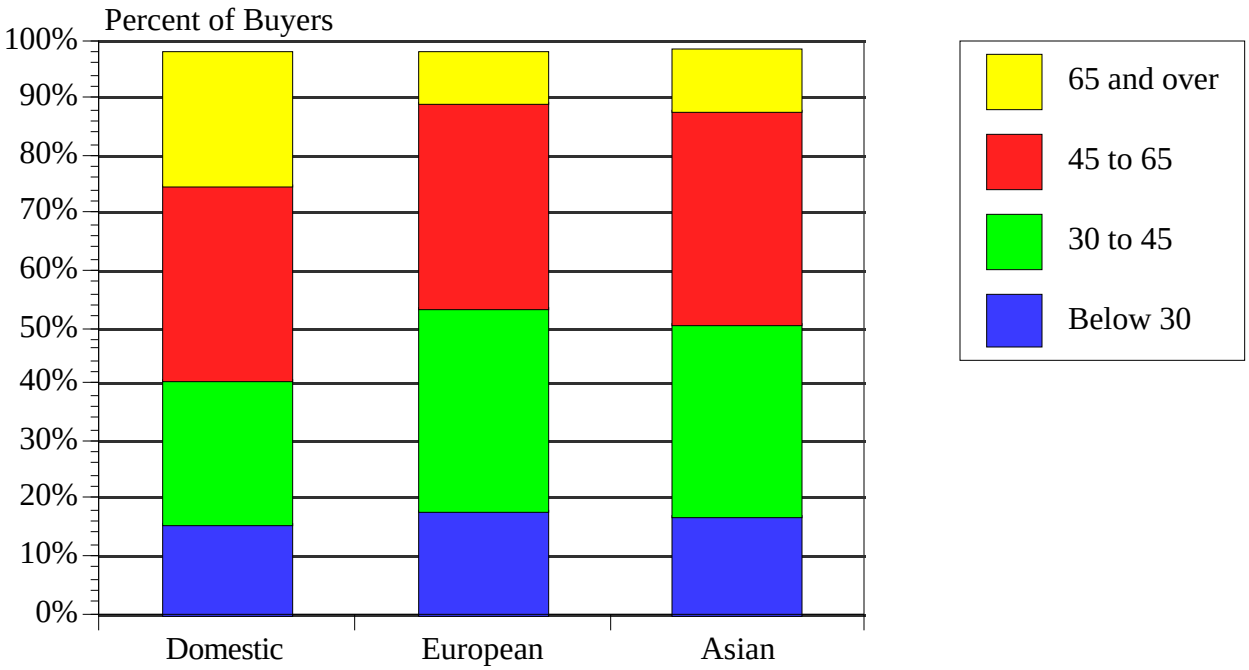
Auto Sales By Buyer Age:

In model year 1996, roughly one-quarter of domestic auto makers' vehicle sales were to purchasers over 65. For comparison, purchasers 65 and over accounted for roughly 10% of European and Japanese auto makers' U.S. sales.

While purchasers below the age of 30 accounted for about 16% of domestic and foreign auto makers' sales, purchasers between the ages of 30 and 45 accounted for about 35% of foreign auto makers' sales compared to 25% of domestic auto makers' sales.

Figure 4.3.1: Vehicle Sales by Age and Region of Manufacture



Note: Domestic figures include captive imports and Asian figures include North American assembled vehicles. Figures do not add up to 100% for any region because data wasn't available for 1% to 2% of vehicle sales. Purchaser is defined as the principle purchaser.

Source: American Automobile Manufacturers Association, Facts and Figures 96, page 57, 1996 (data developed by J.D. Power and Associates).

4.4 Multi-vehicle Households

A total of 27.7% of households own one car. These households buy 18.4% of new vehicles.

The following items summarize the findings of a recent University of Michigan Survey on household vehicle ownership patterns.

- In early 1994, there were 1.30 cars per household, on average, and cars constituted 68% of all vehicles owned by households. In the preferred fleet, there would be just over one car per household, and cars would drop to 52% of all vehicles I the household.
- Households prefer almost twice as many vans as they now own.
- Households want to increase the number of pickups they own only slightly.
- Currently, households have about the same number of sport utilities as vans. In the preferred fleet, there would be more sport utilities than vans. On average, households would like to own

about 33% sport utility and 25% van.

Actual vehicle ownership as compared to preferences are indicated in Table 4.4.1.

Table 4.4.1: Mean Number of Vehicle Types Now Owned and Preferred per Household

Vehicle Type	Owned	Preferred
Cars	1.30	1.06
Vans	0.15	0.27
Pickups	0.32	0.38
Sport Utilities	0.13	0.34
Total	1.95	2.05

University of Michigan, Survey Research Center, "Results of Questions on Car/Truck Preferences and Other Special Issues", August, 1994.

One-vehicle Households:

- In 1994, 84% of one-vehicle households owned a car. In the preferred fleet, only 58% would own a car.
- Twenty percent of one-vehicle households would own a sport utility in the preferred fleet, 11% would own a van, and 11% would own a pickup.
- Half the trucks in one-vehicle households in 1994 are pickups, but half would be sport utilities in the preferred one-vehicle fleet.

Two-vehicle Households:

- Sixty-six percent of the vehicles across all car-truck combinations in two-vehicle households in 1994 are cars. This would drop to 48% in the preferred fleet.
- Generally, two-vehicle households do not want two vehicles of the same type. The preferred combination (64%) is one car and one truck, which is now 52% of the two-vehicle fleet.
- Finding a two-car, no truck household will be something of a rarity (only 16%, down from 40% today) if households carry through on their preferences. Eighty-four percent of two-vehicle households would include at least one truck.
- In the preferred fleet, the car/pickup combination would become less common, with gains for the car/van and car/sport utility combinations.

The distribution of the kinds of vehicles owned in one-, two-, and three-vehicle households is

presented in Table 4.4.2.

Table 4.4.2: Household Vehicles Owned and Preferred

Vehicle Combinations	Owned	Preferred
	One-Vehicle Households	
1 Car	84%	58%
1 Van	4%	11%
1 Pickup	8%	11%
1 Sport Utility	4%	20%
	Two-Vehicle Households	
2 Cars	40%	16%
1 Car, 1 Truck	52%	64%
2 Trucks	8%	20%
	Three-Vehicle Households	
3 Cars	26%	7%
2 Cars, 1 Truck	46%	49%
1 Car, 2 Trucks	25%	39%
3 Trucks	3%	5%

University of Michigan, Survey Research Center, "Results of Questions on Car/Truck Preferences and Other Special Issues", August, 1994.

Recent survey data furnished by Chilton has revealed the following vehicle ownership statistic:

- Eighty-two percent of all households with at least one vehicle own a car. This is down from the 1991 studies, which showed that 86% percent of all households own a car.

Source: Chilton Research Services, Consumer Automotive Repair Studies (CARS), 1996.

Auto Purchase Statistics

A 1990 *Newsweek* survey disclosed some interesting statistics revealing the decision and purchasing practices of new car buyers.

- More than eighty seven percent (87.8%) of new car buyers have a specific vehicle in mind and 69.2% have a specific model in mind when purchasing a new vehicle.
- During the entire shopping process 75.8% of new car buyers look at two or less models. Of those who consider two models, 49.4% look at four door cars with a truck as their second choice.
- More than forty-five percent (45.4%) of new car buyers purchase their new car within two weeks of deciding to make the new car purchase.
- Seventeen percent of new car buyers do not test drive the vehicle they purchase.

The survey also reveals some interesting statistics concerning advertising mediums and their effectiveness.

- More than thirty-six percent (36.2%) of new car buyers pay more attention to automotive advertising before purchasing a new car.
- More than thirty-five percent (35.3%) of new car buyers felt that magazine advertising offered the most information about new cars, followed by television at 31.8%.
- More than thirty-four percent (34.7%) of new car buyers felt that magazine advertising was the most influential in the decision making process, followed by television at 30.2%.
- The three types of magazines looked at most often during the six months prior to new car purchase were news-weeklies at 47%, consumer at 46%, and automotive at 38%.
- The new car buyers who regularly read magazines most often read news-weeklies (22.8%) and mass market (20.3%) magazines.

Source: *Newsweek Survey*; 1990 Buyers of New Cars

Pickups

In 1996, 28% of all households with at least one vehicle owned a light truck, up from 26% in 1991

- Light Truck owners by number of vehicles per household:
    - 14% - one vehicle household;
    - 43% - two vehicle household;
    - 43% - three or more vehicles per household (Chilton, 1996)

Source: Chilton Research Services, Consumer Automotive Repair Studies (CARS), 1996.

In a major policy move, Ford has been in the process of rethinking its product strategy and shifting much of its multibillion dollar development budget away from cars. Ford announced plans to discontinue the Thunderbird, Mercury Cougar, the Lincoln Mark VIII, and the Escort Coupe by the end of the decade so it can concentrate more on sport utility vehicles and other light trucks.

Ford's design committee spent six years developing the new 1996 F-Series pickup. Realizing the truck market has significantly changed. Ford conducted many consumer focus groups to help in the complete redesign of the F-150. Traditionally, Ford trucks have appealed mostly to commercial buyers and farmers. With the new model, Ford is shifting its products to appeal to the personal use market. The new design will be introduce in the F-150 line first and depending on market acceptance will go into the F-250 and F-350 series.

It is estimated that Ford makes at least $3,000 in profits for every F-Series truck it sells. This compares to $750 on average for cars.

Ford has spent an estimated $5 billion on the development of the new F-150 (North American markets only). This compares to the $6 billion spent to produce the Ford Contour, Mercury Mystique, and Europe's Ford Mondeo compact "world cars."

To get the 1996 F-150 off to a good start, Ford plans to budget at least $110 million on advertising and marketing - the same record amount used to promote the Taurus and Mercury Sable.

Sport Utility Vehicles

According to recent light-buyer attitudinal and demographic information from the J.D. Power and Associates Automotive Performance, Execution, and Layout Study (APPEAL), most sport utility buyers fall into two categories: the *"Domestic Indulgents"* and the *"Utility Seekers"*. The Domestic Indulgent buyers have a median age of 46, and a wide age range, with 20% being age 60 or older. They are predominantly male and married, with a medium income of $62,000 a year. Domestic Indulgents place importance on vehicle size as a sign of status. Additionally, they want a luxurious, fully equipped vehicle and see vehicles as being for more than transportation - they are status-conscious and tend to want the best-in-class when they purchase.

The other group of buyers overwhelmingly comprising the segment are the Utility Seekers - people who want more from their vehicles. The median age of buyers in this group is 43 and 80% are married. Utility Seekers require functional aspects from vehicles such as the ability to tow, haul a trailer, or carry four or more passengers. These buyers also tend to be very safety-oriented, not style-conscious, and gravitate towards bigger/heavier vehicles. Utility Seekers view vehicles as transportation first and foremost. More than two-thirds of these buyer group purchase as SUV or van, while only 7% purchase cars.

Source: JD Powers and Associates, The Power Report, "Compact SUVs Warning To Other Vehicle Segments: Watch Your Owners", February, 1996.

According to J.D. Powers research, more affluent, older buyers will continue to dominate new-vehicle sales. Many of these buyers have purchased sport utility vehicles but may opt for near-luxury vehicles in the future. And college educated females will become a more important consumer group for dealers to reach. Consumers are expected to become aware that sport utility prices have gone up and that near-luxury car pricing has decreased, and notes that there has been a migration of luxury car buyers into the near-luxury segment because these customers ca get premium quality at lower prices. Also, the baby boomer segment of the population, which comprised 37% of the buyers in 1995, will reach 45% in 2010. Older buyers are not as interested in style, design and image as are younger buyers.

Source: JD Power and Associates, The Power Report, “A Possible Showdown Between Near Luxury and SUVs?”, pg. 6, February, 1997.

In only five years, the popularity of SUVs has doubled the market share for this segment. How much longer can sales growth continue? Consumer research, economic time series and demographic trends support a favorable outlook for this segment.

Consumers will see almost 20 new models enter the SUV arena by the year 2000 as manufacturers jump into this fast-growing segment. Many in the industry are questioning whether this barrage of product introductions will payoff.

Paul Ballew, Chief Economist for J.D. Power and Associates and the report's director, said, "A note of caution has to be expressed over the more upbeat assessments for the segment coming from the industry in general. The competitive dynamics of the market will continue to shift dramatically over the next decade."

The study also explores the important role product design and style play in SUV selection. Ballew commented: "The interior/exterior styling needs of the consumer are being met by the SUVs, driving many upper income households to leave their prior ownership of sporty vehicles as well as luxury and near-luxury cars. This shift is nothing short of amazing."

The study pointed out that the factors that drive SUV demand vary significantly from the compact segment to full-size and each sub-segment must be assessed separately. The study also finds that the Big Three have been the primary beneficiaries of the SUV growth to date and discusses who the future winners and losers are likely to be as prices and margins come under increasing pressure.

Ward’s Communications also released a report on the future of sport utility vehicles. In the next two years 14 automotive brands are expected to introduce new SUVs and SUV sales are expected to continue to rise for the rest of the century - although the rate of that increase will slow, nearing the overall light vehicle growth rate by the end of the 1990s.

Price competition in the SUV market will increase, especially at the luxury and inexpensive ends, as it shifts from favoring sellers to favoring buyers. These developments will benefit consumers who have paid substantially more for SUVs that they would paid for pickups on which most SUVs are based.

Domestic auto makers continue to dominate the U.S. SUV market. They sold 80% of 1995's record 1.76 million SUVs, and the high profit margin on these vehicles has been credited with helping to finance their economic recovery.

Mazda says it will quit selling the high-performance, rotary-engine RX-7 sports car in the USA by the end of the year. Other recent victims: Nissan 300ZX and Toyota MR2. The RX-7 is the latest victim of a hit-and-run by sport utility vehicles. These vehicles have taken over from sports cars as

top image machines.

Other predictions:

- SUV volume will grow by nearly a half million units to 2.2 million by 2001; more than 10 times the number sold in 1982.

- SUVs will continue to become more like family vehicles through 2001, with additional luxury features and safety equipment.

- SUVs have become the focus of automotive innovations, such as new styling and trend designs, and are surpassing luxury and sports cars as marketing test beds for hot new technologies.

- New, unconventional types of SUVs will emerge in the next few years, including car-based models and minivan/SUV hybrids.

- Japanese manufactures are developing smaller, car-based SUVs with softer rides and better fuel economy; these will challenge the larger, truck-based American SUVs in the emerging international market.

Source: J.D. Power and Associates "Assessing the SUV Markets: A Detailed Look Ahead," 1996.

Additional ownership data from Chilton and Dorhing are summarized below.

- Six percent of all households with at least one vehicle own a sport utility vehicle.

- Sport utility ownership by number of vehicles per household is as follows:

  16% - one vehicle household;

  33% - two vehicle households;

  51% - three or more vehicles per household.

- Type of vehicles future sport utility vehicle buyers currently drive:

Car	48.5%
Sport Utility	25.8%
Pickup	11.0%
Minivan	10.0%.

Source: Chilton, 1996

Nearly eight percent (79.5%) of sport utility owners will purchase their next sport utility new, 20.5% intend to purchase their next SUV as a previously-owned vehicle.

Source: Dorhing, 1996

Minivans

In a 1996 address before the Motor Press Guild, Chrysler Director of Corporate Research David Bostwick decried claims by east coast financial analysts that the fast moving minivan craze was dying out. Bostwick said if this is true, why are other major car makers bringing out new models.

Chrysler/Plymouth/Dodge have sold 300,000 1996 model vans at the time of the address-still early in the model year. Chrysler has 48.9% of the market and is expected to maintain about a 50% market share. Minivan buyer demographics include the following:

- 45% of minivan owners do not have children;
- Median age of minivan owners is 44;
- Over 120,000 minivans are sold to retirees and 125,000 sold to people under 35 years of age;
- Over one-third of Chrysler minivan buyers are repeat purchasers and they account for influencing (friends/relatives) 50% of other purchases.

4.5 Reasons for Buying

Large Cars vs. Small Cars:

- Size (passenger seating, cargo space), comfort (riding comfort, quietness, interior styling) and safety features are stronger motivations for large car buyers than small car buyers.
- Economic items (credit terms, fuel economy) are stronger among small car buyers than large car buyers.
- Small cars are used more for errands and daily commuting. Large cars are preferred for pleasure driving and vacations.

Trucks vs. Cars

- Safety features and fuel economy are slightly higher motivators for car buyers than truck buyers.
- Car buyers more than truck buyers use their vehicles for errands and pleasure driving, while truck buyers expect to use their vehicles more for hauling, towing and off-road.

Reasons influencing consumer vehicle purchases are summarized in Tables 4.5.1 and 4.5.2 below.

Table 4.5.1: Top Ten Reasons For Purchase 1994 Passenger Cars

Reasons For Purchase	Small	Medium	Large	Average
Durability and Reliability	8.6	8.6	8.5	8.6
A Well Made Vehicle	8.4	8.5	8.5	8.5
Ease of Handling	8.0	8.2	8.4	8.1
Safety Features	7.8	8.2	8.4	8.1
Riding Comfort	7.6	8.1	8.4	7.9
Value For The Money	8.0	7.9	7.7	7.9
Price or Deal Offered	8.0	7.8	7.5	7.8
Manufacturer's Reputation	7.6	7.9	7.9	7.8
Fuel Economy	7.9	7.4	7.0	7.6
Fun to Drive	7.5	7.5	7.8	7.6

Source: Chrysler Corp., Product Strategy & Cycle Planning, "Buying Reasons and Usage - Cars & Trucks by Size, Cars vs. Trucks", October, 1994.

Table 4.5.2: Top Ten Reasons For Purchase 1994 Trucks by Size

Reasons For Purchase	Small	Large	Average
Durability and Reliability	8.4	8.4	8.4
A Well Made Vehicle	8.3	8.3	8.3
Ease of Handling	7.7	7.8	7.7
Riding Comfort	7.6	7.8	7.7
Price or Deal Offered	7.6	7.6	7.6
Value For The Money	7.5	7.5	7.5
Safety Features	7.5	7.4	7.5
Manufacturer's Reputation	7.4	7.5	7.5
Exterior Styling	7.3	7.6	7.4
Fun to Drive	7.4	7.4	7.4

The table is based on data collected from November 1993-January 1994 on "the most important things consumers look for when choosing a new vehicle" identify price, quality, fuel economy, and safety as the most important considerations, in that order. In 1991, just after the Gulf War, fuel economy was a more important consideration than quality or price, and styling was mentioned more frequently than safety features.

University of Michigan, Survey Research Center, "Results of Questions on Car/Truck Preferences and Other Special Issues", August, 1994.

4.6 Importance of Factors in Buying

The relative importance attached to various vehicle attributes is indicated in Table 4.6.1. The table shows the breakdown of responses to five attributes. Male and female responses metropolitan-area as well as non-metropolitan area response distributions are included.

Table 4.6.1: Most Important Vehicle Attribute

	Total	*Male*	*FemaleMetro*		*Non-Metro*	
Dependability	33%	36%	20%	33%	35%	
Safety	28%	21%	36%	28%	29%	
Quality	19%	24%	14%	20%	16%	
Low Price	10%	10%	11%	10%	11%	
Fuel Economy	7%	7%	6%	7%	8%	
Don't Know	3%	2%	3%	3%	1%	

Source: Opinion Research Corporation, December 12, 1996

4.7 Convenience/Comfort

Consumer preferences regarding accessories are illustrated in Table 4.3.2.1. Respondents were asked to assign a value of 1 to 4. (Very important = 4, Important = 3, Somewhat important = 2, Not at all important = 1)

Table 4.7.1: Importance of Vehicle Options and Accessories in Next Vehicle Purchase

Air conditioning	3.52
Cruise control	2.76
Power door locks	2.71
Power windows	2.56
Anti-theft devices	2.51
Power seats	2.22
CD player	1.82
Cellular phones	1.73
Computerized map positioning	1.66
Leather upholstery	1.64
Sunroof	1.53

Source: Dorhing, 1996.

J. D. Power recently surveyed consumers to determine buying patterns and preferences for new car features. Relative interest in ten automotive features is indicated in Table 4.3.2.2.

Table 4.7.2: Top Ten Traditional Features Buyers Desire On Their Next Vehicle

Feature	Have	Want	Willing to Pay
Air Conditioning	97%	94%	$561
AM/FM Radio	99%	92%	$141
Automatic Transmissions	85%	70%	$564
Cruise Control	83%	70%	$158
Power Door Locks	79%	70%	$105
Drivers Armrest	79%	68%	$45
Cassette Player	87%	67%	$102
Power Windows	76%	67%	$133
Adjustable Steering Column	84%	67%	$88
Anti-lock Brakes	76%	66%	$407

Source: JD Power and Associates, The Power Report, “Using APPEAL To Identify Product Feature Desirability”, pg. 10, October, 1996

The top five leading features that interest buyers and prospective buyers, and the relative levels of interest are listed in Table 4.7.3.

Table 4.7.3: Top Five Leading Edge Features Buyers Desire On Their Next Vehicle

Feature	Have	Want	Willing to Pay
Side Impact Airbag	10%	25%	$289
Daytime Running Lights	32%	25%	$31
Electronic Traction Control	15%	17%	$203
Rear Passenger Airbag	3%	16%	$209
Auto 911 Dialing	2%	14%	$69

Source: JD Power and Associates, The Power Report, “Using APPEAL To Identify Product Feature Desirability”, pg. 10, October, 10, 1996

4.8 Fueling

Opinion Research Corporation has surveyed a national sample audience about alternative fuel availability. The firm asked four questions. The first three questions related to the percent of time respondents would buy an alternative fuel that could be used instead of gasoline in a conventional car. The firm varied the questions by varying the price of the fuel and the availability of the fuel--in the first question the alternative fuel cost 25 cents less than gasoline per gallon and was available at 1 in 50 stations; in the second question the fuel cost 10 cents less per gallon and was available at 1 in 20 stations; and in the third question the fuel cost 5 cents less per gallon and was available at 1 in 5 stations. **In all three questions the median response was that the respondents would use the fuel 25 percent of the time.** There was, however, a large distribution of responses.

The fourth question asked respondents what is the smallest percent of stations offering a new fuel would there have to be before they bought a dedicated alternative fuel engine that cost $500 less than the conventional engine. **The median response was 40 percent, though, again there was a large distribution of responses.**

Below are the four questions that were asked and a table comparing the aggregate results. Opinion Research Corporation has also provided detailed results by key demographic variables such as income; sex; race; household size; education; and region.

Questions 1 to 3: Suppose your car could use gasoline or a new fuel that worked just as well as gasoline. If the new fuel cost (25, 10, 5) cents LESS per gallon but was sold at just 1 in (50, 20, 5) stations, what percent of the time do you think you would buy the new fuel?

Question 4: Suppose you were buying a new car and could buy an optional engine that required a new fuel just as good as gasoline and cost the same as gasoline. The optional engine costs $500 less, but the fuel is NOT available at all stations. What is the SMALLEST PERCENT OF STATIONS offering the new fuel that would make the engine an acceptable choice?

Responses are summarized in Table 4.8.1.

Table 4.8.1: Consumer Tradeoffs for Alternative Fuel Availability and Fuel Price

Percentage of Time Would Buy New Fuel if it Cost 25 cents less per Gallon but was Sold at Just 1 in 50 Stations

	Total	*Male*	*FemaleMetro*		*Non-Metro*
None	21%	16%	26%	20%	26%
Less than 50%	34%	35%	34%	37%	27%
More than 50%	35%	41%	28%	34%	35%
Don’t Know	10%	8%	12%	9%	12%

Source: Opinion Research Corporation: November 7, 1996.

Table 4.8.1 (Continued)

Percentage of Time Would Buy New Fuel if it Cost 10 cents less per Gallon but was Sold at Just 1 in 20 Stations

	Total	*Male*	*FemaleMetro*		*Non-Metro*
None	20%	17%	24%	19%	23%
Less than 50%	38%	38%	38%	40%	30%
More than 50%	34%	40%	30%	33%	38%
Don't Know	7%	5%	9%	7%	9%

Source: Opinion Research Corporation: November 7, 1996.

Percentage of Time Would Buy New Fuel if it Cost 5 cents less per Gallon but was Sold at Just 1 in 5 Stations

	Total	*Male*	*FemaleMetro*		*Non-Metro*
None	23%	19%	26%	22%	24%
Less than 50%	29%	30%	28%	31%	24%
More than 50%	42%	46%	37%	41%	45%
Don't Know	6%	4%	8%	7%	6%

Source: Opinion Research Corporation: November 7, 1996.

Percentage of Time Would Buy New Fuel if it Cost 25 cents less per Gallon but was Sold at Just 1 in 5 Stations

	Total	*Male*	*FemaleMetro*		*Non-Metro*
None	11%	10%	12%	11%	10%
Less than 50%	17%	17%	17%	19%	11%
More than 50%	66%	69%	64%	65%	70%
Don't Know	6%	4%	8%	6%	8%

Source: Opinion Research Corporation: December 5, 1996.

Percentage of Time Would Buy New Fuel if it Cost 5 cents less per Gallon but was Sold at Just 1 in 50 Stations

	Total	*Male*	*FemaleMetro*		*Non-Metro*
None	47%	41%	53%	48%	42%
Less than 50%	35%	40%	30%	34%	38%
More than 50%	13%	14%	11%	12%	14%
Don't Know	5%	5%	6%	5%	6%

Source: Opinion Research Corporation: December 5, 1996.

4.9 Safety

The importance of safety devices is indicated in Table 4.9.1. Respondents were asked to assign a value of 1 (not at all important) to 4 (very important).

Table 4.9.1: Importance of Safety Features in Next Vehicle Purchase

Driver and passenger airbags	3.27
Anti-lock brakes	3.25
Crush/crumple zones	3.13
Traction control	3.08
Side impact airbags	2.72
Automatic 911 calling system	2.44
Electronic collision detection	2.33

Very important = 4, Important = 3, Somewhat important = 2, Not at all important = 1

Source: Dorhing, 1996.

Survey results indicating the most important safety devices preferred by consumers are indicated in Table 4.9.2.

Table 4.9.2: Percent of Consumers Rating Safety Equipment as Important

Equipment	1996	1997	Percent Decline
Driver/passenger airbags	82%	57%	30.5%
Side-impact airbags	58%	37%	36.2%
Anti-lock brakes	82%	72%	12.2%
Traction control	77%	74%	3.9%
Crush/crumple zones	75%	74%	2.7%
Automatic 911 calling	50%	40%	20.0%
Electronic collision avoidance	43%	41%	4.7%

Source: Dorhing, 1996.

Analogous results indicating those devices considered "not at all important" are presented in Table 4.9.3.

Table 4.9.3: Safety Devices Not Considered Important by Consumers

Equipment	1996	1997	Percent Decline
Driver/passenger airbags	6%	24%	300%
Side-impact airbags	17%	34%	200%
Anti-lock brakes	7%	13%	86%
Traction control	9%	11%	22%
Crush/crumple zones	7%	10%	43%
Automatic 911 calling	30%	33%	10%
Electronic collision avoidance	31%	37%	19%

Source: Dorhing, 1996.

Future sport utility vehicle buyers rated the following safety features more important than future car, minivan and truck buyers:

- Driver and passenger air bags
- Anti-lock brakes
- Traction control
- Electronic collision detection system.

Source: Dorhing, 1996

Most Valuable Safety Attribute:

The results of recent, "open-ended" consumer survey to identify the most valuable safety attribute is illustrated in Table 4.9.4.

Table 4.9.4: Most Valuable Safety Attribute for Next Vehicle Purchase

	Total	*Male*	*FemaleMetro*		*Non-Metro*
Airbag	29%	31%	27%	27%	35%
Brakes	13%	14%	13%	15%	9%
Seat Belt System	11%	11%	12%	11%	11%
Strong/Heavy/Frame	9%	10%	8%	9%	8%
Size	7%	7%	6%	7%	4%

Source: Opinion Research Corporation: January 16, 1997.

4.10 Methods of Buying

-- Purchase *(cash, credit)*

Monthly payment is an important factor:

The following information was taken from an article published in the Chicago Tribune, Dec. 1, 1995. The article discussed the findings of light duty vehicle financing study conducted by CNW Marketing Research in Brandon Oregon.

Average monthly payment thresholds, the point at which consumers begin to resist making a new vehicle purchase or lease because they feel the outlay is to high, slipped to $328 per in the 1995 model year, down from $332 per month in the 1994 model year, and $363 in the 1993 model year.

Thresholds vary by vehicle segment. For example, the monthly threshold for a budget car (Geo metro) is $197 per month; for a subcompact car (Ford Escort) it is $256 per month, for a mid-size car (Ford Taurus) it's $396 per month; for a sports coupe (Ford Mustang) it's $366 per month; for a full size car (Buick Park Avenue) it's $517 per month; and for a luxury car (Lexus LS400) it's $856 per month.

Thresholds for trucks and vans include: $214 a month for a compact pickup truck (Ford Ranger): $357 a month for compact sport utility (Chevy Blazer); $333 per month for a mini-van (Dodge Caravan); $277 a month for a full size pickup (Ford F-150); and $448 a month for a full size sport utility vehicle (Chevy Tahoe).

Survey results on payment and financing practices are summarized in Table 4.10.1.

Table 4.10.1: How New Vehicle Was Acquired

Cars	**Financed**	**Leased**	**Cash**
Mini	79%	10%	11%
Basic Small	59%	24%	17%
Lower Middle	46%	37%	18%
Upper Middle	38%	35%	28%
Small Sporty	60%	25%	15%
Sports Car	37%	39%	24%
Middle Specialty	57%	20%	23%
Basic Large	35%	16%	49%
Luxury	16%	58%	27%
Trucks			
Compact Pickup	70%	13%	17%
Full-Size Pickup	64%	15%	20%
Compact Van	48%	28%	24%
Full-Size Van	64%	13%	23%
Compact Sport Utility	49%	33%	18%
Full-Size Sport Utility	52%	16%	32%

Source: *Chicago Tribune,* December 1995

Approximately 75% of new car or light-truck loans are for domestic vehicles, while Asian makes account for 23% and European makes only 2%, according to J. D. Power survey data.

Only about 1% of those who intend to buy a new car will settle for a used vehicle and those that buy used often move up in size class. For example, the new car buyer will price a new Toyota Tercel, be unhappy with the value of the vehicle and will in turn spend an equal amount of money on a used vehicle such as a Toyota Camry.

The 60-month payment was popularized when consumers couldn't afford the monthly rate for a 48-month loan. Leasing became popular when consumers found that new car prices were so high they couldn't afford 60-month payments.

The number of vehicles traded in on the purchase of a new one has increased to 34.8% from 34.1% last year.

Source: JD Power and Associates, The Power Report, "Higher Prices and Desires Fuel Consumer Leasing Binge" pg. 5, January 1996

-- Leasing

In 1993, nearly 25% of vehicles were leased.

Lessees are more loyal than people who finance a vehicle or pay cash. Ninety-three percent who replaced a leased vehicle lease another vehicle made by the same car-maker. Of the respondents who replaced a leased vehicle, 58% returned to a dealership with which they had previously done business. This compares to 44% of cash customers, and 39% of people who financed. The leading reasons consumers gave for leasing are:

- lower monthly payments (58%),
- the ability to drive a new and/or different vehicle more often (45%),
- a smaller/no down payment required (44%).
- could drive a more expensive vehicle for the same monthly payment (28%), and
- liked avoiding investing in a depreciating asset (28%).

Source: J.D. Power and Associates, The Power Report, "Higher Prices and Desires Fuel Consumer Leasing Binge", pg. 1, January, 1996.

Less than one-third of customers surveyed in the 1996 J.D. Power and Associate leased their new cars and light trucks. For luxury carmakers, however, leasing percentages are closer to 58% of the segment. Luxury car makers like Audi, Cadillac, Infiniti, Jaguar and Lincoln not only lead in leasing penetration among manufacturers, but they depend on leasing and make it a large part of the marketing strategy.

Source: J.D. Power and Associates, The Power Report, "Mercedes-Benz - Leasing The Luxury Way", pg. 13, August, 1996.

Survey data on purchasers who leased and considered leasing when acquiring a new vehicle are summarized in Table 4.10.3.

Table 4.10.2: Percent of New Vehicles Leased at Closing

Cars	Leased	Considered Leasing
Mini	10%	22%
Basic Small	24%	34%
Lower Middle	37%	45%
Upper Middle	35%	43%
Small Sporty	25%	35%
Sports Car	39%	49%
Middle Specialty	20%	28%
Basic Large	16%	24%
Luxury	58%	64%
Trucks		
Compact Pickup	13%	22%
Full-Size Pickup	15%	22%
Compact Van	28%	37%
Full-Size Van	13%	23%
Compact Sport Utility	33%	45%
Full-Size Sport Utility	16%	27%

Source: J.D. Power and Associates, The Power Report, "Increased Loyalty Requires Greater Leasing Consideration", pg. 1, February, 1996.

While leasing has buoyed new vehicle sales, a recent study shows that only half (51%) of current lessees intend to lease a new vehicle again when it come time to replace their current lease vehicle. Most of the rest (35%) indicate that they intend to buy rather than lease the replacement for their current lease vehicle.

Of significance to manufactures in the finding that the intended purchase of a used vehicle is preferred over the purchase of a new vehicle by a two to one margin (24% vs. 11%). These findings reflect the consumer's growing interest in used vehicles, particularly late model, low mileage off-lease vehicles. These used vehicles are now attractive alternatives to the purchase or lease of higher priced new vehicles.

The study suggests that leasing has become a double-edged sword for auto manufactures and other lessors. Leasing is often used as a marketing promotion by manufactures who "buy down" lease rates, much as they did in the past with rebates and low annual percentage rate financing on new vehicle purchases. This provides a short term gain for auto makers by bringing in more consumers. Conversely, the study implies future risk to vehicle manufactures and their dealers because leasing attracts some consumers only influenced by the low monthly payment. These lessees tend to be the least loyal to the vehicle manufacturer and the leasing dealership, and least committed to leasing

itself.

This conclusion is supported by the profiles of five distinct lessee types who are attracted to leasing. These five types of lessees are identified in a new consumer segmentation, based on the study results, which defines the mind-set of consumers who lease in today's automotive market.

1. Bargain hunters (23%) - these are true "price shoppers" whose main objective is getting the lowest monthly payment possible. Unfortunately, they are least likely to be satisfied with leasing or to recommend it to others. Bargain Hunters also have the lowest intentions to lease a new vehicle again, stay with the same make of vehicle, or the same dealership.

2. Brands' Best Friends (21%) - these are consumers who place brand loyalty above everything else. But, like the Bargain Hunter, they are not necessarily convinced that leasing is the right choice for them or others. While these consumers have the highest make loyalty, they also have the highest intentions to buy their off-lease vehicle rather than lease a new vehicle again.

3. Smart Shoppers (18%) - they recognize that leasing gives them the opportunity to get more car for the money, with less hassle and more peace of mind. They are the group most satisfied with leasing, and have the highest intention of leasing a new vehicle again.

4. Image Indulgers (23%) - represent consumers who like leasing because it allows them to move up to a more luxurious vehicle. They have average intentions to lease again, and stay with the same make or dealer.

5. Techno Traders (15%) - represent consumers who need the security of always having a new vehicle with the latest technology and features, and one that is always under warranty. These frequent traders like to experience different vehicles often, hence leasing is attractive to them, although they have low make and dealer loyalty.]

Source: Strategic Research & Consulting, Inc. (an Opinion Research Corporation Company), LeaseBASE Study, March, 1997.